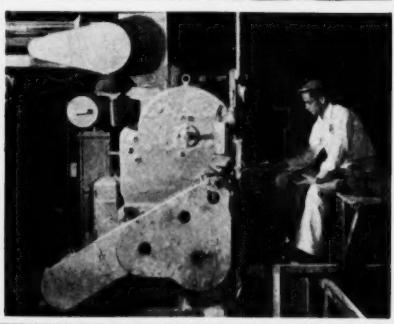


# Chemical Week

November 22, 1952

Price 35 cents



**Who, what, where?** Here's an easy-to-use breakdown of DPA fast write-offs . . . . p. 17

► **Research Corp.'s Barker:** "Invention perpetually repays research; harvest . . . to plant again" . . . p. 37

► **CW Camera** sees how chlorine "retailer" buys by tank car, sells by cylinder . . . . p. 46

► **Now it's wetting agents in fertilizer; dividends: easier to make, easier to use** . . . . p. 50

► **Formaldehyde makers foresee upturn—but they won't buy DPA's sky-grazing goal** . . . . p. 63

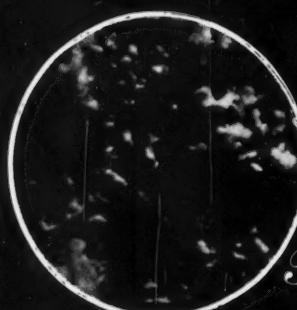
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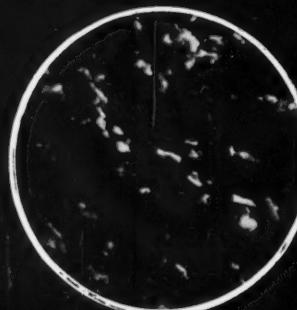
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# Chemical Week

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November 22, 1952

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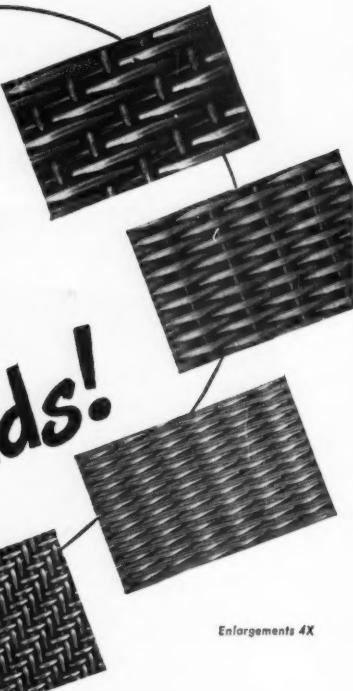
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## OPINION . . .

### Vital Link

To THE EDITOR: We would like to comment on your recent article entitled "The \$100 Million Market for Waxes" by James E. Sayre and Charles J. Marsel:

Nowhere does the article mention Moore & Munger as a contributor to research and development in wax over the past 25 years. For example, the authors mention the use of polyisobutylene and polyethylene . . . using the trade names of Esso, Solvay, and DuPont. Moore & Munger introduced these very important additives. A mention is made . . . of milk container wax, also developed by this firm.

[They] mention Esso Standard as having a well established position in the microcrystalline wax field; Moore & Munger developed and is marketing that company's microcrystalline wax. . . . Table 6 lists a number of producers of waxes and blends. Moore & Munger does not appear.

All these specific references do not embrace the primary fact: In the field of paraffin wax, Moore & Munger is the largest single factor in this country, both in marketing and development and is so generally recognized. We believe that some mention should have been made of this fact. . . .

FRANK V. SNYDER  
Moore & Munger  
New York 6, New York

*Authors Sayre and Marsel (and CW's editors) did, unfortunately, let their emphasis on basic wax producers overshadow the pioneering research and development work carried out by Moore & Munger. Too, this firm should have been included among producers of wax blends.—ED.*

### Bunk Advocate

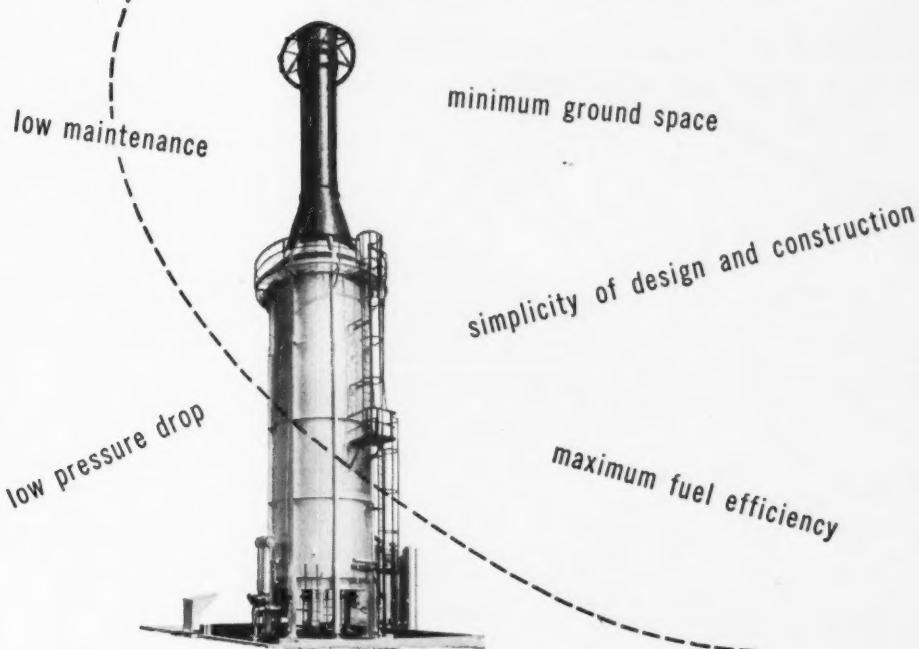
To THE EDITOR: As a biologist who has spent years of effort . . . to develop agricultural chemicals which might be useful in increasing and improving crop production, I find your editorial (Nov. 8) criticizing the school of thought which advocates that chemicals used agriculturally are inherently harmful . . . to be a fair appraisal of and reply to those unscientific views.

There is no question but that all new chemicals to be used in food production should be carefully reviewed by scientific studies to ensure against danger to the public, but [the organic farmers'] point of view negates the possibilities of finding and

# most efficient

PETRO - CHEM ISO - FLOW FURNACES

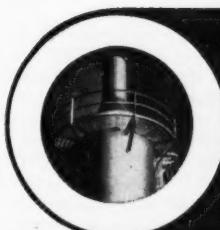
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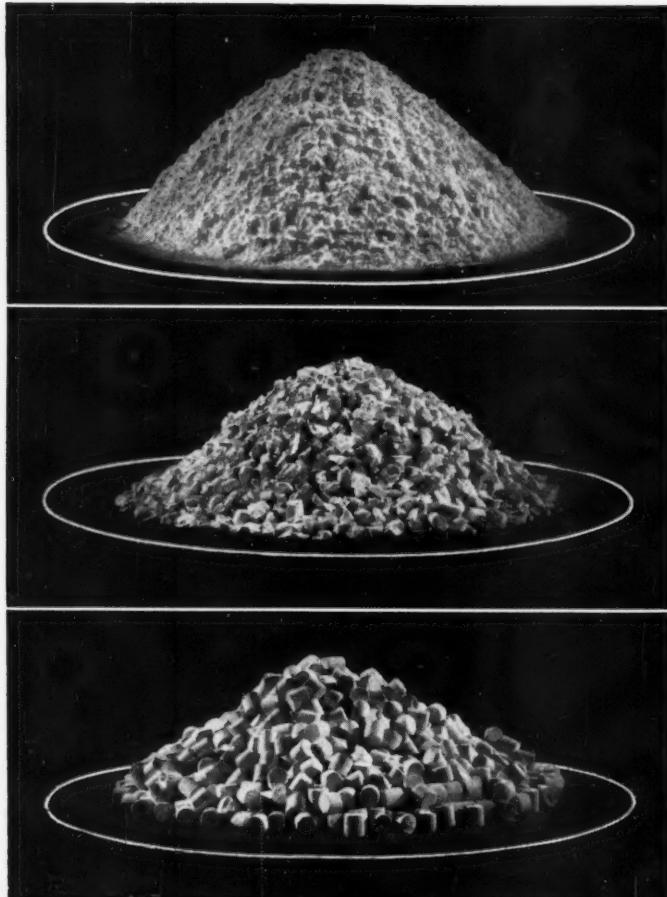
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## O P I N I O N . . . . .

using chemicals which make for human progress.

You ask your readers, "Will you let them get away with it?"

My small contribution . . . to offset the harm which these people might accomplish is:

The nature cults  
Bunk advocate,  
Loud proclaim views  
Facts vitiate.

NATHANIEL TISCHLER  
Palmyra, N. J.

### Facts vs. Half-Truths

TO THE EDITOR: In regard to the developing conflict between the organic gardening proponents and the chemical fertilizer industry (Nov. 8), both sides seem to be half right.

There is no question . . . that adding humus to soil promotes good water retention and stimulates the growth of useful soil micro-organisms. It is likewise true that plants cannot use organic nutrients until these have been broken down by the soil bacteria and the plants to build new organic structures.

All plant nutrients are "inorganic" when ingested by the plants. Thus, when a grower supplies inorganic nutrients . . . he is merely by-passing the first step in making organic nutrients available for plant nutrition.

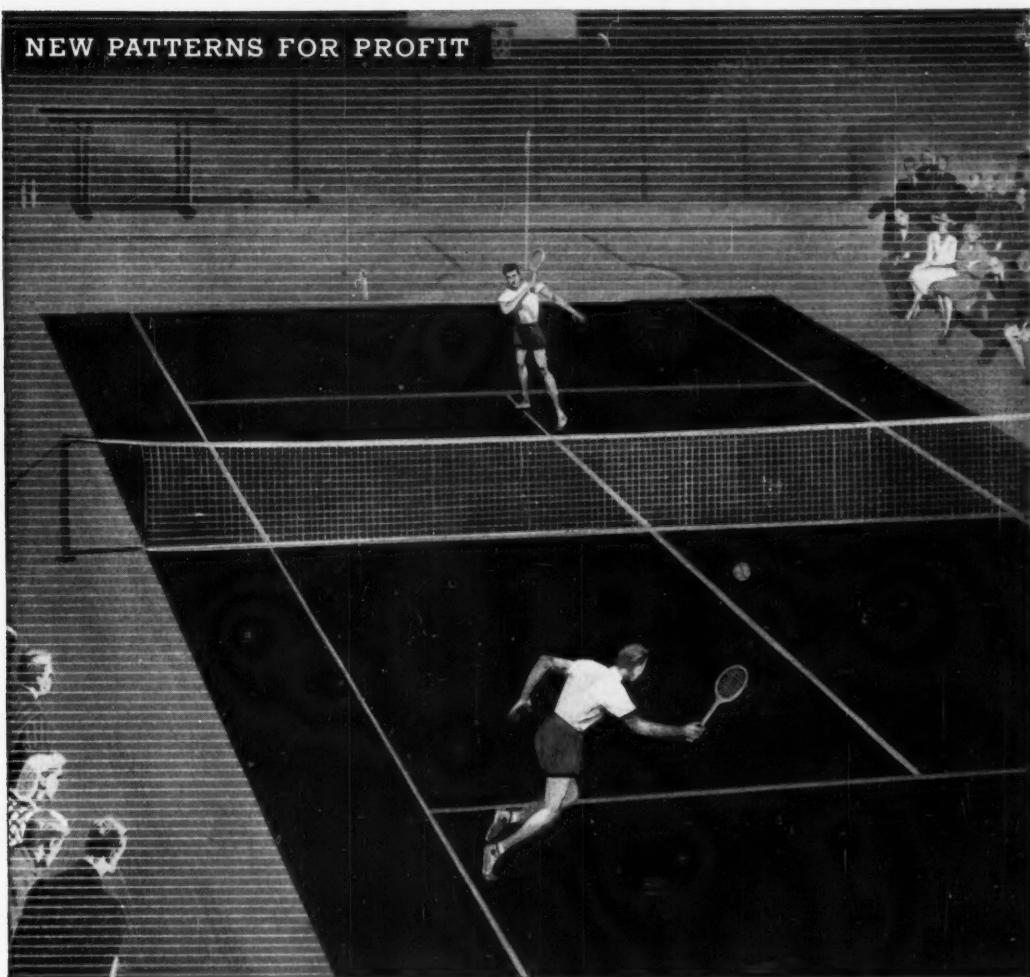
A simple experiment would establish this point beyond any argument: (1) A sample of soil should be leached of most of its soluble nutrients. (2) It should be mixed with the so-called "organic foods," i.e., undigested plant tissue . . . (3) The mixture should be sterilized to kill all bacteria and soil micro-organisms . . .

A second portion of the leached soil should be treated with an appropriate "chemical" or "inorganic" fertilizer and sterilized in the same manner. Finally, seeds of several plants such as corn, peas, wheat, oats, etc., should be planted in the soil samples after careful cleaning and sterilization of their surfaces by a harmless antiseptic or antibiotic mixture. Planting should be done under aseptic conditions . . . the surface of the soil protected . . . from air-borne bacteria. All water should be sterile . . .

Under these conditions the seeds should all sprout but those in the "organic" soils would die due to lack of enough soluble nutrients. Those in the "chemical" soil would prosper due to the availability of soluble nutrients. It isn't the "organic"—it's the organisms.

To insure maximum plant yields and plant health one should provide

## NEW PATTERNS FOR PROFIT



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A "packaged indoor tennis court" . . . a court with just the right bounce for tournament play . . . one that would last a lifetime . . . a court that could be permanently marked, rolled up and delivered by truck.

Dreaming? Not at all . . . here is another money-making idea which could become a reality, thanks to new chemical materials called elastomers.

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for compounding pigments and fillers. They can be molded into shoe heels, fabricated into luggage, and used for making wire coatings. Best of all, they have great production flexibility. You can cure styrene-butadiene elastomers to slabs or sheets, or process them on calenders into heavy-gauge films.

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SERVING INDUSTRY... WHICH SERVES MANKIND

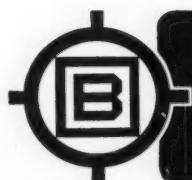
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#### O P I N I O N . . . . .

both organic and chemical fertilizers and possibly soil conditioners as well.

Organic and chemical fertilizers favor good soil structure . . . maximum water retention in the area of root growth. Organic material serves the added function of providing some nutrients as it is broken down by soil bacteria . . . furnishes a fairly constant supply of soluble nutrients. Chemical fertilizers add to this supply of soluble nutrients. This double-barreled approach insures good nutrition for both the soil bacteria and the plants (both require soluble nutrient salts).

Over-use of organic materials can lead to souring of soils, over-use of inorganic fertilizers can lead to drying out of soil and poor structure. Use of both in the proper proportions leads to good structure, good water retention, continuous supply of soluble nutrients and maximum yields.

Let's not allow [organic] zealots to cause trouble by use of half-truths when the whole truth is available and so easy and logical to understand.

No matter what humans say or think, the growing plant is the final answer as to what it needs. The fact that yields improve with the use of both organic and inorganic fertilizers is proof that both furnish useful nutrients and contribute to good environment for healthy growth of the plant.

No fight seems necessary when the plants themselves can answer all the zealots.

KENNETH L. CARTWRIGHT  
Manager, Nutritional Division  
Charles Bowman & Co.  
New York, N. Y.

#### Non-Toxic Waxes

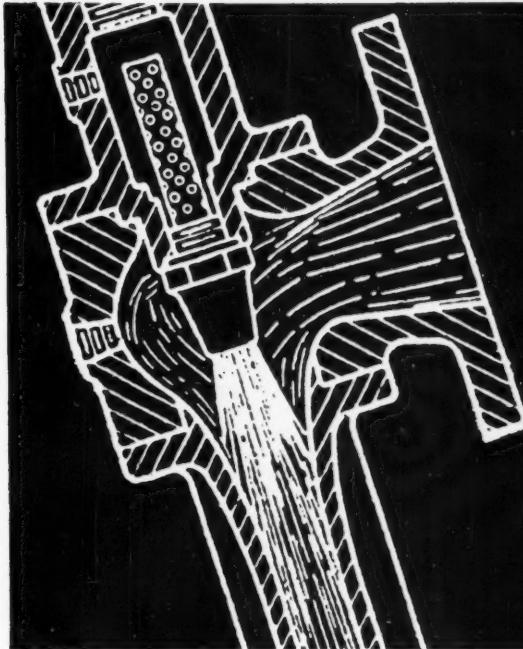
TO THE EDITOR: . . . Re my earlier comments (Nov. 15) and those of Mr. Venable concerning the toxic effect of some chlorinated paraffins . . . our statement that Chlorowax 40 and 70 are non-toxic is based upon the tests made for us by the Smyth Laboratories (Philadelphia).

In addition, in our many years of producing these products . . . and testing in our laboratories . . . our people have never reported receiving a rash from them. . . .

They are used in a variety of appli-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



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Croll-Reynolds supplies Evactors in 1, 2, 3, 4 and 5-stage units, operating in the following pressure ranges:

1-stage	3 inches of mercury absolute or higher
2-stage	0.5 to 4 inches of mercury absolute
3-stage	2 to 12 millimeters of mercury absolute
4-stage	0.15 to 3 millimeters of mercury absolute
5-stage	down to a few microns

The one and two stage units are used primarily to remove non-condensables, in priming and in vapor removal. Three-stage Evactors find application in the growing field of vacuum refrigeration, and in

the chemical, food and petroleum industries. Four and five-stage units meet demanding vacuum requirements in many fields.

Many thousands of Croll-Reynolds Evactors are in operation, some of them for over 30 years. They are installed in every state of the United States and in many foreign countries. Let our technical staff help you with your vacuum problems.

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2. MAXIMUM TEMPERATURE OF CONDENSING WATER.
3. MINIMUM ABSOLUTE PRESSURE REQUIRED.
4. MAXIMUM DISCHARGE PRESSURE.
5. TYPE OF LOAD; THIS TO INCLUDE MOLECULAR WEIGHT OF GAS OR VAPORS OTHER THAN AIR AND PERCENTAGE OF EACH GAS OR VAPOR MAKING UP LOAD.
6. AMOUNT OF LOAD TO BE HANDLED PREFERABLY IN POUNDS PER HOUR.
7. TEMPERATURE OF LOAD.
8. TYPE OF CONDENSER DESIRED; BAROMETRIC OR SURFACE TYPE.
9. SPECIAL MATERIALS OF CONSTRUCTION NEEDED.

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CONDENSING EQUIPMENT



# Thanksgiving

IT'S Thanksgiving time again . . . when the beautiful colors of autumn, the bountiful harvest, the savor of the traditional feast remind us once more to be thankful for the blessings which we in America enjoy.

• • •

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## O P I N I O N . . . . .

cations . . . none of our customers has ever suffered any ill effects from handling these products. . . .

H. S. OLSON  
Diamond Alkali Co.  
Cleveland, Ohio

## Annual Reference Issue

To THE EDITOR: A copy of your Buyer's Guide Issue (Nov. 1) has just come in and we are most favorably impressed by its usefulness for reference purposes.

We therefore congratulate you on the completion of this big task . . . You are surely rendering all-round great service to the chemical profession as well as to chemical manufacturers . . .

W. A. HAMOR  
Director of Research  
Mellon Institute of Industrial Research  
Pittsburgh, Pa.

## Tasty Apples

To THE EDITOR: I read that letter (Nov. 1) about chemical sprays and your reply. I can bear witness that your reply [to the organic farming enthusiast] was mild. . . . Don't spray and the bugs will eat your young plants before they are grown up. That's general. Here is something more accurate. . . .

For the last few years we have been in the habit of raiding an abandoned orchard for apples good enough to eat . . . with very skimpy results. Last spring somebody trimmed and sprayed the trees. Presto! this fall we had our fill of good apples. (I won't disclose the exact spot.)

WILLIAM EISENMAN  
Heyden Chemical Corp.  
Princeton, N. J.

## M E E T I N G S . .

Manufacturing Chemists' Assn., second semi-annual meeting and conference, Hotel Statler, New York, N.Y., Nov. 25.

Society of Plastics Industry, Sheeting and Coated Fabrics Division Conference, Commodore Hotel, New York, N.Y., Dec. 4-5.

American Institute of Chem. Engrs., annual meeting, Cleveland Hotel, Cleveland, O., Dec. 7-10.

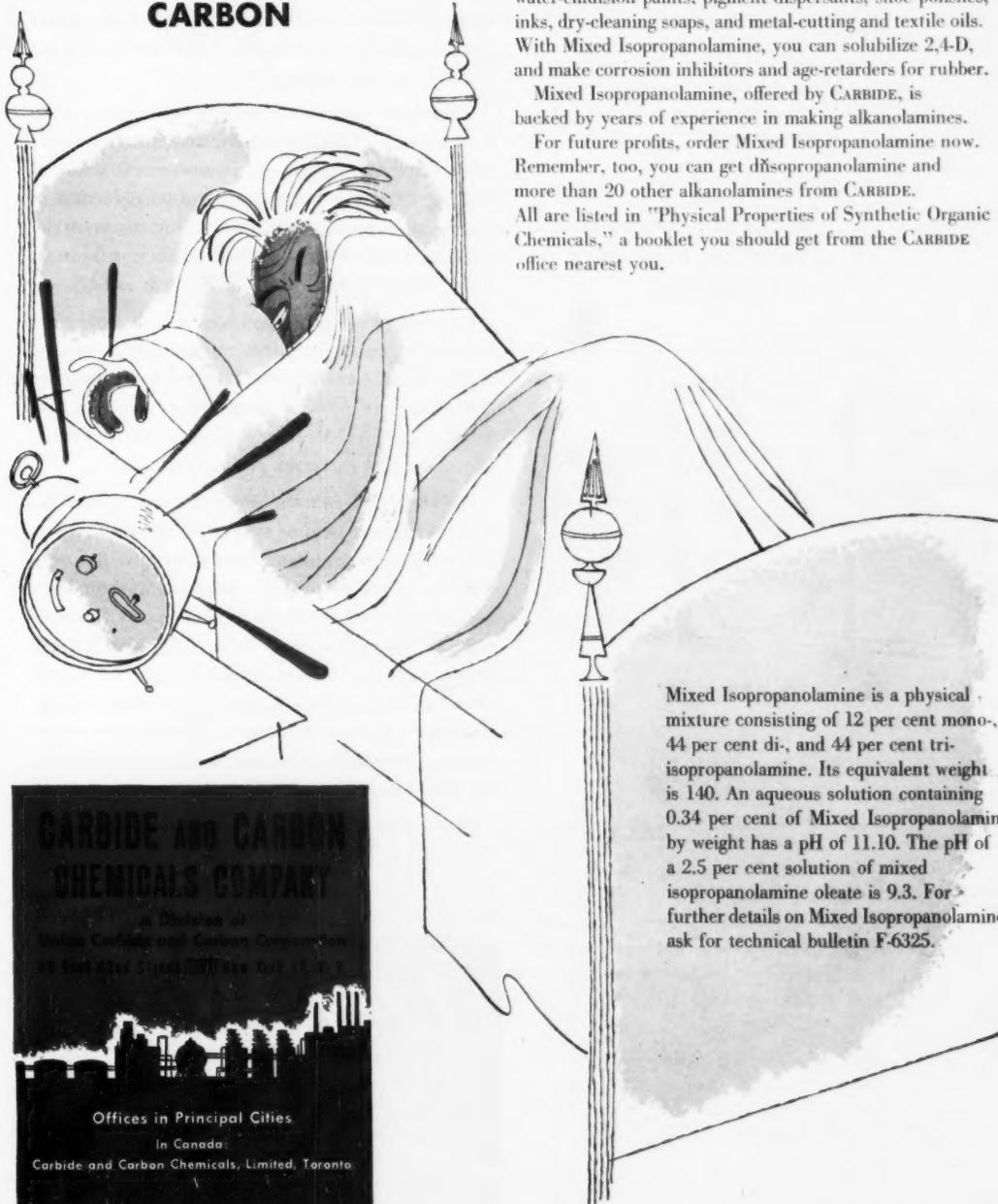
American Pharmaceutical Mfrg.'s Assn., mid-year meeting, Waldorf-Astoria Hotel, New York, N.Y., Dec. 8-10.

Society of Cosmetic Chemists, semi-annual meeting, Biltmore Hotel, New York, N.Y., Dec. 11.

wake up demand with . . .

# MIXED ISOPROPANOLAMINE

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AND  
**CARBON**

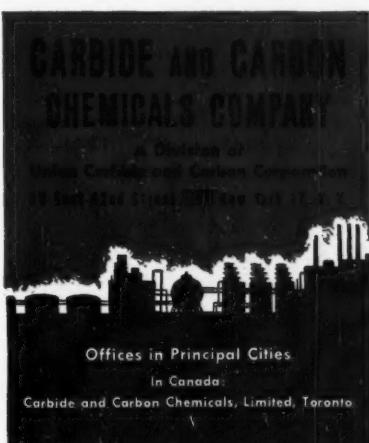


Mixed Isopropanolamine makes soaps that have excellent hydrocarbon-solubility and good color-stability. These soaps are efficient and economical when used in making water-emulsion paints, pigment dispersants, shoe polishes, inks, dry-cleaning soaps, and metal-cutting and textile oils. With Mixed Isopropanolamine, you can solubilize 2,4-D, and make corrosion inhibitors and age-retarders for rubber.

Mixed Isopropanolamine, offered by CARBIDE, is backed by years of experience in making alkanolamines.

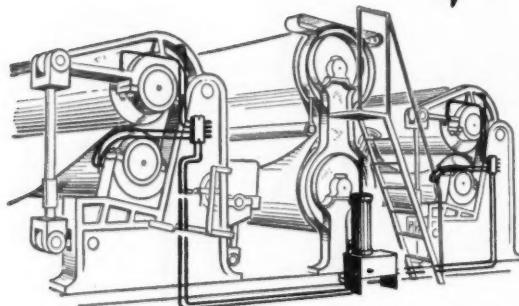
For future profits, order Mixed Isopropanolamine now. Remember, too, you can get diisopropanolamine and more than 20 other alkanolamines from CARBIDE. All are listed in "Physical Properties of Synthetic Organic Chemicals," a booklet you should get from the CARBIDE office nearest you.

Mixed Isopropanolamine is a physical mixture consisting of 12 per cent mono-, 44 per cent di-, and 44 per cent tri-isopropanolamine. Its equivalent weight is 140. An aqueous solution containing 0.34 per cent of Mixed Isopropanolamine by weight has a pH of 11.10. The pH of a 2.5 per cent solution of mixed isopropanolamine oleate is 9.3. For further details on Mixed Isopropanolamine, ask for technical bulletin F-6325.



# 18% less h.p. load with Farval lubrication

FARVAL—Studies in  
Centralized Lubrication  
No. 112



**I**N the manufacture of paper, as the wet pulp travels through the rolls of the Kamyr press, pressures run up to 2700 pounds per inch. Lubrication by hand is usually accompanied by a noticeable power drag. Lubricant is wasted and shutdowns for bearing repair invariably follow.

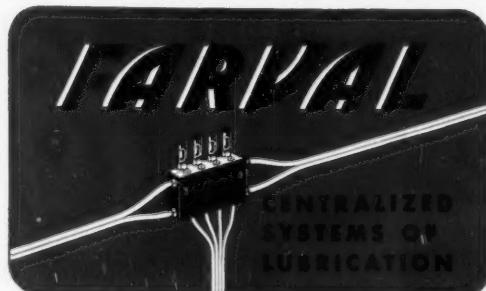
To insure continuous, uniform lubrication of its Kamyr press, a Canadian manufacturer installed Farval Centralized Lubrication. An immediate reduction of bearing friction brought a substantial reduction in power consumption. In fact, recording charts on the press show that when the Farval system was installed the horsepower load dropped as much as 18%.

On these press rolls, as on hundreds of other rolls—calendar stacks in paper mills—rubber mills—steel and brass rolling mills—Farval has proved its ability to save power, oiling labor, lubricant and bearing expense. Most important of all, it reduces downtime and increases production.

Farval has proven itself in over 25 years of service. It is the original Dualine system of centralized lubrication that others imitate. The Farval valve has only 2 moving parts—is simple, sure and foolproof, without springs, ball-checks or pinhole ports to cause trouble. Through its wide valve ports, and full hydraulic operation, Farval unfailingly delivers grease or oil to each bearing—as much as you want, exactly measured—as often as desired. Indicators at every bearing show that each valve has functioned. For a full description, write for Bulletin No. 25.

The Farval Corporation, 3291 East 80th Street,  
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# Chemical Week

BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

## NEWSLETTER

Advertising of synthetic fibers pays off—too well, according to Macy's Vice President Norman Tarnoff. Manufacturers put retailers in a spot, he claims, by creating public demand before productive capacity is large enough to satisfy it.

He also has words about incomplete or misleading labeling. When a consumer misuses a fabric because he hasn't been properly informed, it's not the manufacturer but the retailer who bears the brunt.

His proposals: honest labels, stable prices, instructive ads.

Honesty and instruction are also demanded by the Chicago Association of Commerce and Industry before it will reverse its stand against fluoridation of Chicago's municipal water supply. "We are impressed with the importance of specific questions asked by the opponents and as yet unanswered by the proponents," comments the Association in a report made public last week by its Public Improvements Committee.

Acknowledging proponents' arguments, and having heard testimony from various experts and organizations, the Association still holds eleven objections. They boil down to these: compulsion on everyone to be treated, on the basis of inadequate scientific knowledge, when other, individual measures to prevent tooth decay are available; inability to control ingestion of an admittedly toxic chemical, since fluorides also occur in spray residues; lack of data concerning fluoride's effect on adults, the aged, allergic individuals; lack of unanimity among doctors, dentists and researchers; higher water rates.

While Chicago was proposing, the U. S. was disposing. Now signed, sealed and delivered to Basic Management, Inc., is the wartime magnesium plant at Henderson, Nev., now occupied by some 50 private concerns, including National Lead, Stauffer Chemical, Western Electrochemical and U. S. Lime products. The tenant-owned corporation bought the plant from the state, which had previously bought it from the federal government.

Built at a cost of \$116 million, the plant was sold to the state for \$24 million. Even so, the government made out better than if it had been sold for salvage, as was originally thought inevitable.

Other firms, too, were actively acquiring and planning: Du Pont will build a \$10 million plant at Circleville, Ohio, to turn out Mylar polyester film—a strong, heat-resistant "cellophane"; Allied Chemical & Dye is considering this week a \$23 million synthetic fiber plant slated for Hopewell, Va.; Kaiser Aluminum & Chemical just put its fourth potline into operation at Chalmette, La.; Celanese's \$17 million petrochemicals plant at Pampa, Texas, came onstream—initial products: acetic acid and anhydride; and Titanium Metals Corp.'s Henderson, Nev., plant has now reached 4 tons-a-day capacity.

But the redcoats are coming! Distillers Co. Ltd., large British chemical maker, is conducting an intensive survey of chemical operations and opportunities on the whole North American continent. The company won't say, but it's pretty likely that an investment is contemplated.

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## NEWSLETTER

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A far cry from such practicalities is the current news from Soviet Russia. Caught with their dialectical trousers down, Soviet scientists were called upon by the head of their Academy of Sciences to abandon "obsolete and reactionary" theories, develop new ones on structure of matter, catalysis, petroleum and ore formation.

Further criticisms: in applied science, the Soviet scientists have often concentrated on secondary problems, neglected primary ones; and they've spent time on problems already solved elsewhere.

If the U. S. can't sell Russia any theories, it may be able in any event to sell Canada more chemicals. Canadian tariffs have been reduced on a number of raw materials. Among them:

- lube oil additives (not made in Canada)—from 20% to 10%;
- styrene-butadiene copolymer resins—from 7½% to free;
- aniline dye solutions from 20% to free.

Smog and drought are accentuating industry's problems in widely separated areas: Engineers' best calculations went awry in Oregon; they figured Crown Zellerbach's 66-million-gallon waste storage capacity would be ample for the longest conceivable drought, but now the company must discharge waste directly into the Willamette River, low as it is, or risk breaking the storage lagoon's dikes. Tennessee Valley is the driest in 65 years, and TVA power cutbacks have affected phosphorus production. Petroleum-based smog around Los Angeles, now severe for five straight weeks, is harming vegetable crops—spinach, lettuce, beets, broccoli, etc.

To be followed by pharmaceutical firms is the trial, scheduled for Dec. 1, of Colin Pharmacal Co., Inc. (Long Island City, N. Y.) on the charge of giving stock shares to physicians and druggists so that they would favor Colin products. Colin asked for an early trial as "the only way we can establish our innocence." Agreeing to a temporary injunction against stock deals while the trial is pending, the company nevertheless declares that "not one scintilla of evidence" supports the charge.

It looks as if the Office of Price Stabilization may commit suicide before it is killed. Its employees are looking for other jobs since they see the end approaching, and the latest move—setting up local price boards composed of consumers, businessmen and the public—is regarded as the last gasp of a dying agency. But don't expect Director Tighe Woods to liquidate the agency until he is forced to.

Beginning this week and probably running on through March, the government's antitrust suit in Chicago against Du Pont, General Motors and U. S. Rubber will be churning out facts, allegations and rulings that may affect the pattern of U. S. industry for years to come. Opening statements were made Tuesday; the government is now presenting its case; the defendants' turn at bat may not come until January.

Answering the government's charges of conspiracy (CW Newsletter, Nov. 1), U. S. Rubber's pre-trial brief says it is "squarely at issue" with the government on the latter's contention that Du Pont family members control U. S. Rubber.

GM's brief tsk-tsk's the government's attack "because it was necessary for the government to go back 150 years in order to weave its web of suspicion and surmise."

Both companies insist that all their business dealings with Du Pont have been "arm's-length transactions dictated by common business sense rather than by 'scheming'."

. . . The Editors

# How porous do you want your catalyst supports?

Norton catalyst supports come in two types:

1. If your process calls for coated catalyst supports, you get what you want from Norton medium-porosity spheres. They have a porosity of 30-35%, with a rough, open surface structure. This gives you maximum adherence of catalyst to surface.

2. If you need supports for impregnation, Norton high-porosity spheres are your choice. Their porosity is 42-47% with large, connected, internal pores uniformly dispersed throughout the support. This gives you maximum deposition of catalyst.

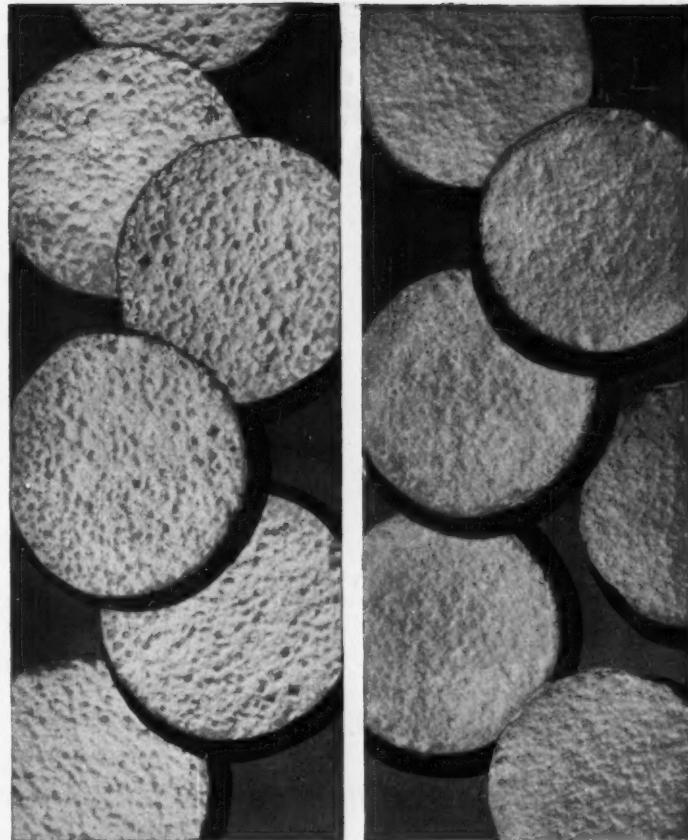
You also have a choice of sizes and shapes. Norton spheres are available in diameters of  $\frac{3}{8}$ " to 1". Other Norton catalyst supports, in ring and pellet form, available in diameters of  $\frac{1}{8}$ " to 2".

A choice of materials, too. Norton catalyst supports can be made from a variety of refractory materials, offering many different combinations of properties.

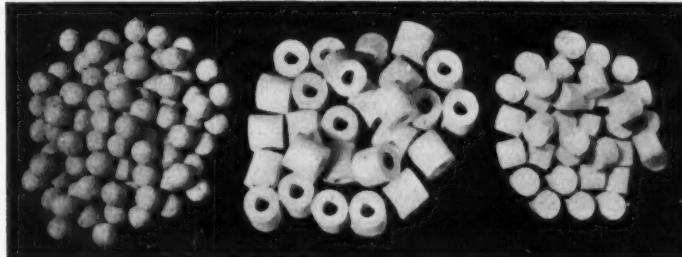
## Test them in action

You can easily prove, in your own plant, what Norton catalyst supports can do towards improving your production. Want to see samples? Contact your Norton representative or write direct to Norton Company, 251 New Bond Street, Worcester 6, Mass. Canadian Representative: A. P. Green Fire Brick Co., Ltd., Toronto, Ont.

**NORTON HEAT EXCHANGE PEBBLES**  
also offer you worthwhile advantages, especially where alternating oxidizing and reducing atmospheres are met. They're made of ALUNDUM\* electrically fused alumina (alumina content 95% to 99%). Nothing like them for static or moving heat exchange beds.



Greatly enlarged views of cross-sections of the two types of Norton catalyst support spheres. Left: Norton High-Porosity Spheres have connected pores throughout. Right: Norton Medium-Porosity Spheres have pores close to surface. You can also get Norton Low-Porosity Spheres if required.



Norton catalyst supports are made in sphere, ring, and pellet form.

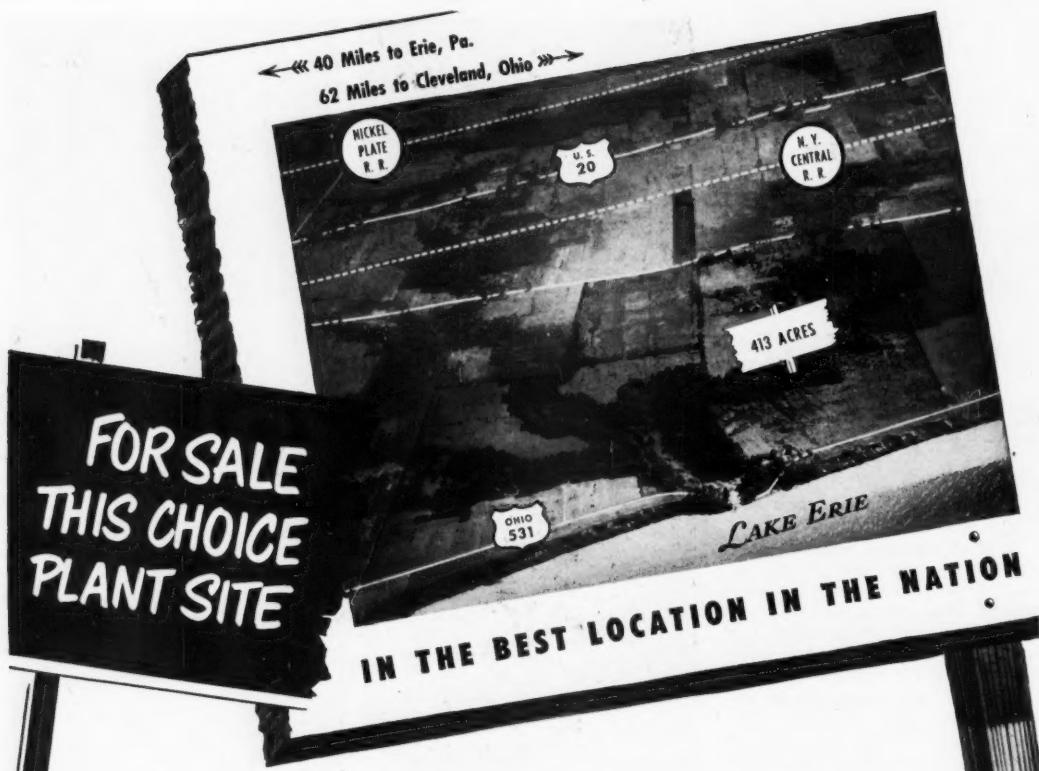
\*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

**NORTON**

## Special REFRactories

Making better products to make other products better

**NORTON COMPANY, WORCESTER 6, MASSACHUSETTS**



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IDEAL FOR CHEMICAL PRODUCERS and many types of general manufacturing, the 413-acre plant site shown above is available now at minimum cost.

On Lake Erie's "Chemical Shore" Located between two major lake ports—Ashtabula and Conneaut, Ohio—within a few miles of America's fastest-growing center of industry, this plant site offers mainline rail and highway facilities . . . access to unlimited fresh water . . . soil conditions favorable for heavy structures.

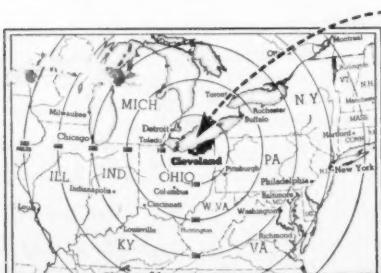
Nearby Communities Ashtabula, four miles west, and Conneaut, 10 miles east, are easily accessible by automobile or municipal bus. Bus schedules can be arranged for plant employees.

Utilities Large power plant nearby, part of Cleveland Electric Illuminating Company's 1,144,000-kilowatt interconnected system. Natural gas available in area by December. Unlimited fresh water from Lake Erie. Sewage facilities must be installed.

Zoning and Taxes Site unzoned. Property taxes extremely low. The 1951 tax rate per \$100 valuation of property for Ashtabula Township, \$1.28; for North Kingsville, \$1.54.

A Rare Opportunity—Act Today For full information about this site and the opportunities for your company here, *phone, wire or write Development Department, Richard L. DeChant, Manager. All inquiries held in strict confidence.*

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## BUSINESS &amp; INDUSTRY



EXECUTIVES WITH PROBLEMS: Not so many, but just as big.

## Executive Worries

In a survey of top company executives, CW finds tariffs, greater competition and taxes are the major worries.

Changes under the new administration, they feel, will be gradual; the principal effect, psychological.

Last week, CW's correspondents and editors throughout the country queried company presidents and executives on their major worries.

Their report: Executives don't have as many problems as they did during the rush of mobilization—but the ones they have left aren't going to be easily solved. Basically, there are three: tariffs and foreign competition, an increasingly competitive sales picture, and taxes.

The effect of the new administration on business will be more figurative than actual; but the atmosphere

of "let's get going" puts the large majority of businessmen into an optimistic mood.

As one man put it: "We hoped for an Eisenhower victory, but couldn't bring ourselves to plan on it."

Some executive worries concern specific branches of the chemical process industries. Rubber producers are speculating that government synthetic plants may finally be sold to private industry. Fatty acid producers wonder what the spurt of new ice cream substitutes (CW, Nov. 1) may do to the vegetable oil market. But

most worries are the same over a broad range of industries.

**Tax Take-Off:** On taxes, there are sighs of relief over the possibility of excess profits tax repeal. There is unanimous agreement with the sentiments of Dow's Leland Doan who says that because of EPT, "business has already passed the point of diminishing return, and now seems to be approaching a point of almost disappearing return upon efficiency and creativity."

A Cleveland man feels that if the tax dies, companies won't have to feel that they must obtain a certificate of necessity before beginning any expansion.

A West Coast manufacturer thinks that expiration of EPT, and subsequent investment of retained earnings should go far toward allaying a recession in the latter half of 1953.

Another westerner, in commenting on possible business readjustments, looks to the phenomenal growth rate of the industry to quickly absorb any slack in the economy, easily within two years.

There seems to be no question that competition will be a great deal keener in 1953, with the possibility that relatively inefficient producers will be hard hit. Price controls, one Chicagoan states, "mean nothing to us. Our prices are well below our ceilings and they may go lower."

But while executives fear for lower prices on the products they sell, they aren't counting on lower cost of the things they buy. This is especially true of capital goods.

The increase in construction costs, they feel, has made expansion of well-known, standard chemicals unprofitable. This problem can't get better until the government faces up to the need for a realistic program covering plant replacement.

**Why on Wages:** Top management doesn't expect that its executive compensation problems will be easily solved. The new administration may have more a liberal policy on stock option plans, but—on income taxes, at least—higher income groups won't get a real break.

Some companies, of course, don't have this problem to the same degree. Monsanto, for example, had to rebuild its Texas City organization almost from scratch, following the disaster. And any company with new plant units coming into operation finds it

## BUSINESS & INDUSTRY

easy to move men to better paying and more responsible posts.

On the question of non-executive personnel, they feel that labor and industry will have to work out their own relations; government will be less important in the picture.

One Ohio Valley executive thinks the men and women in the plants will put "more emphasis on hard work rather than the something-for-nothing philosophy they've been sold for 20 years."

On labor contracts, a number of management men express a preference for multi-year pacts similar to the UAW-General Motors agreement.

**Tare on Tariffs:** Opinions on tariffs run the spectrum, depending, it seems, on how close to home foreign competition has struck. One company has been sweating over imports of two products from England, Germany and Holland, offered in the U. S. at a lower prices. The maker here cut its prices to meet the competition. But it can't cut any further and still make a profit.

But this company feels that to get a tariff raised, it would have to present a real case showing considerable damage to its business. "It will no longer," a company spokesman says, "be as simple to get tariffs raised as it has been in the past for some fields."

The export market for some items seems to have been virtually lost as new capacity comes onstream throughout the world. Germany and Japan are back as strong competitors in world markets—and they have the advantage of not wanting dollars for their output.

One fine chemical maker notes that the Japanese are providing his corporation some of its keenest competition.

"I guess," one interviewee says, "that you've got to look at both sides. We can't have high tariffs protecting our own market, and expect to sell our stuff abroad."

The president of a Midwest pharmaceutical house feels that the administration will lean toward the higher tariffs. "The Democrats were headed toward high tariffs, and since the Republicans are traditionally for high tariffs, it looks like the trend is a real one."

"We've done well on the export market, goodness knows, and we don't like competition here. But I'm far from sure that high tariffs are the right answer."

Only the most credulous businessmen expect panaceas from Washington. The rest know they'll have to solve or outflank their problems at home.



ARL's HASLER: On European soil, an apparatus beachhead.

### Yanks Are Coming

While American manufacturers of more commonplace scientific instruments are being hurt by competition from abroad, a U.S. maker of spectrochemical equipment finds that he not only has little or no European competition here but actually has cause for optimism about a branch plant now being set up in Europe.

Applied Research Laboratories of Glendale, Calif., plans to open a branch factory in Lausanne, Switzerland, about Jan. 1. It will turn out production control apparatus, and M. F. Hasler, company president, says business on hand and in prospect is double the firm's original expectations.

The 3,000-square-foot plant will be staffed by 15 technicians, of whom all but the general manager will be hired in Switzerland. Material for the highly specialized testing equipment also will be obtained in Europe whenever possible, Hasler says. This is expected to speed production and permit faster servicing of existing installations. ARL's present staff of field engineers will service equipment now in use on the European continent.

Products will be the concern's regular line of Quantometers, spectrographs, source units and related accessories. Leading item is a Quantometer that can analyze in less than two minutes 11 elements in alloys and other inorganic materials.

ARL's trans-Atlantic expansion bears out the prophecy (*CW, Jan. 26*) that although U.S. instrument makers are being squeezed out of the manufacture of bread-and-butter items like microscopes and cover glasses, they'll

be relatively safe in making electronic equipment and special high-grade apparatus. And by locating its branch plant in Europe, ARL will reap the economy of lower foreign wages.

### EXPANSION . . .

**Butyl Rubber:** Goodrich-Gulf Chemicals, Inc., will build its first plant at Orange, Tex. It will make butyl rubber under Esso patents.

**Coal Tar:** U.S. Steel has awarded Wilputte Coke Oven Division of Allied Chemical & Dye the contract for designing and erecting two coke-oven batteries of 77 ovens each at Gary Steel Works, Gary, Ind.

**Sulfur:** Gulf Sulphur Corp. has discovered a fourth Frasch-mineable sulfur deposit on its Mexican properties.

**Polyacrylates:** B. F. Goodrich Chemical Co. has expanded plant facilities for the volume production of sodium polyacrylates, used in soil conditioners.

**Carbon Dioxide:** Fulton Petroleum Co., subsidiary of Carbon Dioxide and Chemical Co., plans a new dry ice plant and general expansion of east central Utah operations. Planned for 1953, the new plant will be located at Wellington, Carbon County.

### COMPANIES . . .

Institutional investors will finance expansion programs of two companies:

• **Reynolds Metals Co.** will borrow \$76.7 million to complete financing of its post-Korea aluminum expansion program. Through its subsidiary, Reynolds Reduction Co., \$45.7 million in bonds will be sold to nine insurance companies, and \$31 million will be borrowed from 10 banks. Proceeds will complete aluminum and alumina producing facilities at Corpus Christi, Tex., and will finance an aluminum plant at Arkadelphia, Ark. Aluminum-making capacity will be 414,500 tons/year at peak production, expected late in 1953.

• **Newport Industries, Inc.**, has set up a \$6 million credit to finance plant expansion. About \$1.6 million goes to retire outstanding notes and the remainder will help build a new oil refining plant at Bay Minette, Ala., and expand research operations at Pensacola, Fla.

**W. R. Grace & Co.** will ask stockholders December 1 to increase voting rights of common stock. An application to list the common stock on the New York Stock Exchange is being prepared.

## BUSINESS & INDUSTRY

### Write-off Roundup

Herewith, CW presents another summary of fast tax write-off certificates approved by the Defense Production Administration.

Included are the write-offs approved since March, when CW previously charted certificates (CW, Mar. 8, 15). The first certificates granted were summarized on August 4, 1951.

The new listings reflect a number of product groups not represented earlier. DPA, in order to approve expansions, set up formal goals for such large (and important) materials as fertilizers and plastics. A good share of the new certificates went to producers of such items.

The length of certificate lists now being approved by DPA each week is considerably below earlier ones. And with most expansion goals filled, new write-offs will generally reflect newly-set goals.

### CPI Scores High

Of the ten best managed companies in the entire country, four are in the chemical process industries.

Moreover, nearly 25 percent of all 317 companies to merit an excellence rating for management are in the chemical process field. These bouquets come directly from the American Institute of Management's Fourth Quarterly Report of Excellently Managed Companies, published this week. The Institute, a non-profit foundation for the advancement of management, makes comparative audits of some 3,000 companies each year, of which only some 10% meet its standards for excellence.

Based on a point system of 10,000 maximum (7,500 to rate excellent) only ten companies score over 9,000. Among these are the four chemical process companies, Procter & Gamble, Du Pont, Minnesota Mining & Manufacturing Co., and B. F. Goodrich.

Icing on the cake is the fact that P&G and Du Pont finished one-two in the ratings. Named the best managed company in the country (CW, Feb. 23), P&G is "far ahead of its closest competitor." And that closest competitor is Du Pont, itself far ahead of the third-place, non-chemical, company.

**All Around Excellence:** An AIM audit involves analysis of a management according to ten categories.\*

\* Economic function, corporate structure, health of earnings growth, fairness to stockholders, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor, and executive evaluation.

### OXYGEN, HYDROGEN, OTHER GASES

Company, Location	Product	Amount Certified	% Certified
Air Products, Walkerton, Ind.	Acetylene	113,000	50
Air Reduction, Milwaukee, Wis.	Argon	26,352	60
Air Reduction, Los Angeles, Calif.	Argon	23,754	60
Air Reduction, Emeryville, Calif.	Argon	79,064	60
Air Reduction, Vernon, Calif.	Argon	79,064	60
Air Reduction, Lorain, Ohio	Argon	11,465	60
Air Reduction, Chicago, Ill.	Argon	107,410	60
Diamond Alkali, Houston, Tex.	Hydrogen	194,490	65
National Cylinder Gas, Barberton, Ohio	Hydrogen	194,971	55
Stuart Oxygen, San Francisco, Cal.	Hydrogen	22,000	60
Air Products, Bergen County, N.J.	Oxygen, acetylene	57,797	45
Air Products, Iselin, N.J.	Oxygen, acetylene	12,602	45
Air Products, Emmaus, Pa.	Oxygen, acetylene	21,940	45
Air Products of W.Va., Parkersburg, W.Va.	Oxygen, acetylene	4,931	45
Air Products, Walkerton, Ind.	Oxygen, acetylene	6,501	45
Air Products, Iselin, N.J.	Oxygen	19,252	45, 50
Air Products of W.Va., Parkersburg, W.Va.	Oxygen	5,976	45, 50
Air Products, Walkerton, Ind.	Oxygen	10,400	45
Air Products, W.Va., W.Va.	Oxygen	114,364	60
Air Products of W.Va., Parkersburg, W.Va.	Oxygen	12,042	45
Acton Gas Co., Detroit, Mich.	Oxygen	79,167	45
Air Reduction Co., Bethlehem, Pa.	Oxygen	286,327	60
Air Reduction, Chicago, Ill.	Liquid oxygen, argon, nitrogen	4,374,170	50
Air Reduction Co., Lorain, Ohio	Oxygen	308,100	60
Air Reduction Co., Philadelphia	Liquid oxygen, nitrogen and argon	8,452,520	50
Air Reduction, Shreveport, La.	Oxygen	66,110	60
Alcan Chemical, Fairbanks, Alaska	Oxygen	75,000	45
Burdett Oxygen of Cleveland, at Youngstown, Ohio	Oxygen, acetylene, oxygen	496,550	50
Burdett Oxygen Co. of Cleveland, Huntington Park, Calif.	Oxygen, argon, nitrogen	100,250	50
Firth Sterling Steel & Carbide, McKeesport, Pa.	Oxygen	370,000	55
Home Oxygen, Billings, Mont.	Oxygen	182,367	50
Industrial Air Products, Pascagoula, Miss.	Oxygen, nitrogen	207,668	55
Inland Oxy-Acetylene, Spokane, Wash.	Oxygen	63,465	45
Marks Oxygen, Augusta, Ga.	Oxygen, acetylene	178,000	60
National Cylinder Gas, Chicago, Ill.	Oxygen	1,492,500	60
National Cylinder Gas, Steele, Ill.	Oxygen	173,114	55
National Cylinder Gas, near Pittsburgh, Pa.	Liquid oxygen	926,250	55
Union Carbide & Carbon, Houston, Tex.	Oxygen, nitrogen	681,200	50
Union Carbide & Carbon, Los Angeles, Calif.	Oxygen, nitrogen	1,704,082	55

### CARBON BLACK

Pittsburgh Coke & Chemical, Pittsburgh, Pa.	Activated charcoal	445,000	75
Cabot Carbon, Bayou Sale, La.	Carbon black	370,650	50
Cabot Carbon, St. Mary parish (county), La.	Carbon black	1,847,000	50
Cabot Carbon, St. Mary parish, La.	Carbon black	1,099,475	50
Columbian Carbon, Conroe, Texas	Carbon black	395,000	50
Continental Carbon, near Sunray, Tex.	Carbon black	185,000	50
Continental Carbon, near Hobbs, N.M.	Carbon black	1,010,500	50
Continental Oil Black, Westlake, La.	Carbon black	1,646,500	50
United Carbon, St. Mary parish, La.	Carbon black	2,655,500	50
United Carbon, near Wheeler, Tex.	Carbon black	1,907,500	50
Phillips Chemical, Borger, Tex.	Carbon black	2,395,900	50
Thermotomic Carbon, Sterlington, La.	Carbon black	479,500	50
	Carbon black	985,110	50
	Carbon black	198,500	50

### CHLORINE, CAUSTIC SODA, SODA ASH

Allied Chemical & Dye, Syracuse, N.Y.	Chlorine	2,600,000	40
Central Chemical Corp. of Lebanon, Lebanon, Pa.	Chlorine, caustic soda	397,000	45
Diamond Alkali, Pine Bluff, Ark.	Chlorine, caustic soda	200,000	70
Dolomite Reduction Corp., Ada, Okla.	Chlorine	114,865	45
	Chlorine	7,045,960	45
	Chlorine	5,493,100	30

### COKE, COAL TAR

Allied Chemical & Dye, Tonawanda, N.Y.	Coke tar chemicals	375,000	50
Allied Chemical & Dye, Youngstown, Ohio	Coke tar chemicals	1,516,000	60
Koppers, Follansbee, W.Va.	Coke tar products	207,000	60
Allied Chemical & Dye, Semet Solvay div., Ironton, Ohio	Coke	1,325,000	50
American Steel & Wire, Duluth, Minn.	Coke, coal chemicals	7,280,000	50
American Steel & Wire of N.J., Cleveland, Ohio	Coke, cool chemicals	1,450,000	45
Bethlehem Steel, Baltimore City, Md.	Coke, cool chemicals	6,326,000	45
Kemmerer Coal, Lincoln County, Wyo.	Coke, cool chemicals	159,200	85
Moss Iron, Traford, Ala.	Coke, cool chemicals	227,638	85
U.S. Steel, Clairton, Pa.	Coke, cool chemicals	12,570,000	45
U.S. Steel, Fairfield, Ala.	Coke, cool chemicals	159,200	85
U.S. Steel, Cleveland, Ohio	Coke, cool chemicals	5,330,000	45
U.S. Steel, Kaiser Steel, around Columbia, Utah	Coke, cool chemicals	1,700,000	45
Wheeling Steel, Follansbee, W.Va.	Coke, cool chemicals	545,500	50
Alabama By-Products Corp., Tarrant, Ala.	Coke, cool chemicals	5,210,500	45
Allied Chemical & Dye, Kingston, W.Va.	Metalurgical coke	1,177,800	50
Great Lakes Carbon, St. Louis, Mo.	Metalurgical coke	5,420,000	50
U.S. Steel, Clairton, Pa.	Metalurgical coke	10,505,000	55
U.S. Steel, Gary, Ind.	Metalurgical coke	20,888,539	25
Pittsburgh Steel, Monessen, Pa.	Metalurgical coke	14,192,000	45
U.S. Steel, Lorain, Ohio	cool chemicals	11,240,000	85
	Metalurgical coke, cool chemicals	6,303,000	50

## BUSINESS & INDUSTRY

While each of the four chemical companies has its outstanding features, AIM draws attention to the fact that the chemical companies show more all-around excellence than the other six companies rating over 9,000 points.

The only company of the entire 3,000-odd studied to make a perfect score for executive evaluation—the most important category—was Procter & Gamble. So good is P&G's management team that AIM holds it up as a lesson for all other companies. P&G has the best program for the selection of new executives, the best training methods, and the finest development system for employees, rhapsodizes AIM. The company scrupulously avoids such practices as nepotism or favoritism in any form. Most significant, AIM claims, is the fact that the company promptly relieves anyone in an administrative position who fails to measure up to his job.

**Tops On Four:** Although ranking only second in total score, Du Pont outrates P&G in four of the ten categories: corporate structure, health of earnings growth, research and development, and fiscal policies. In the latter category, says AIM, Du Pont bows to no other company, and has made its most enduring mark on good management in this country. The company's research and development and health of earnings excellence call for no elaboration, says the Institute. In general, AIM points out, Du Pont's effect on the whole theory of management in this country has been extensive, and it is to be expected that the company's corporate structure would be excellent.

With the possible exception of a poorly balanced board of directors, AIM considers that Minnesota Mining & Manufacturing Co. has no area of weak management. As 3M's greatest strength, however, AIM points to the practical aspects of its research, and the great number of products brought successfully to market. Applied research and product development must be considered 3M's strongest points. But, AIM adds, the company's noted training courses for employees and its remarkable sales aggressiveness should not be overlooked.

Goodrich, more than any other of the "top-ten" companies, concedes AIM, is an "all-around" company. It is almost impossible to pick out a single area of special excellence in this company which is "super" excellent everywhere.

**Chemical Still Tops:** As if to underscore the earlier statement of its president (CW, Feb. 23) that within the chemical process industries are the

### DPA Certificate Summary (cont.)

#### FERTILIZERS, AMMONIA, PHOSPHORUS

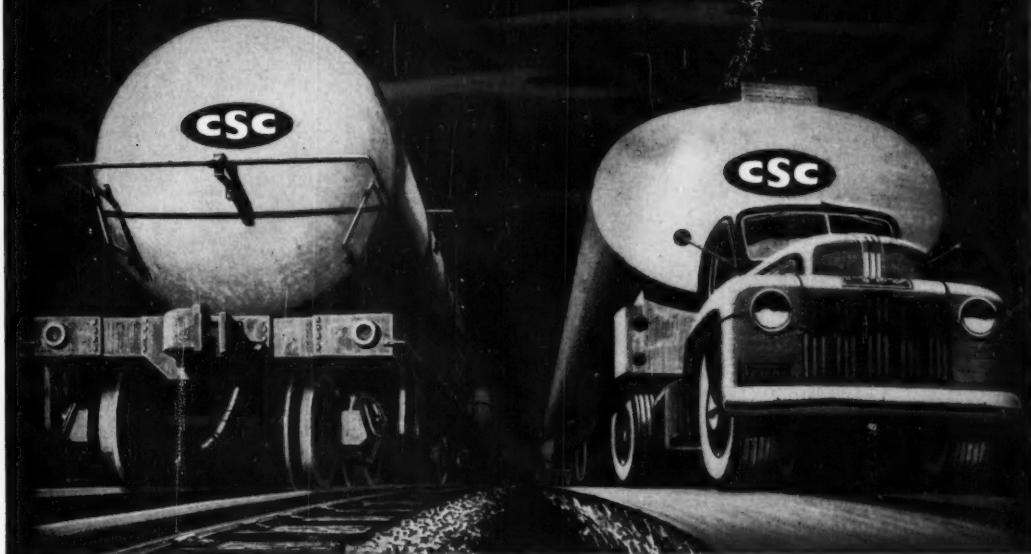
Company, Location	Product	Amount Certified	% Certified
Union Oil, Wilmington, Calif.	Ammonia	5,000,000	45
Rohm & Haas, Philadelphia, Pa.	Ammonium sulphate	213,878	45
Interlake Iron, Chicago, Ill.	Ammonium sulphate	544,300	45
Lion Oil, El Dorado, Ark.	Ammonia	260,165	55
Cities Service, St. Louis, Mo.	Ammonia	5,000,000	45
Phillips Chemical, Pasadena, Tex.	Ammonium sulfate	1,468,000	45
Filtrol Corp., Vernon, Calif.	Ammonium sulfate	3,715,908	55
Hoosier Valley Lime, Adams, Mass.	Dicalcium phosphate	254,109	40
Monsanto Chemical, Trenton, Mich.	Dicalcium phosphate	318,000	40
Shea Chemical, Columbia, Tenn.	Elemental phosphorus, dicalcium phosphate	2,054,530	45
		381,684	40
Allied Chemical & Dye, South Point, Ohio	Fertilizer	5,994,500	75
Phillips Chemical, Pasadena, Tex.	Fertilizer	3,086,050	45
Chemical Warehousing, Oklahoma City, Okla.	Fertilizer	245,000	45
Spencer Chemical, Pittsburgh, Penn.	Nitric acid, ammonium nitrate	1,695,000	45
Spencer Chemical, Henderson, Ky.	Nitric acid, ammonium nitrate	400,000	45
Mississippi Chemical, Yazoo City, Miss.	Nitric acid, ammonium nitrate	2,856,550	45
Phillips Chemical, Moore County, Tex.	Nitric acid	1,684,000	45
National Chemical, Yazoo City, Miss.	Nitrogen fertilizer	7,212,446	45
Sid Richardson Gasoline, Pointe-a-la-Hache, La.	Nitrogen fertilizer	19,000,000	45
W. R. Grace, Memphis, Tenn.	Nitrogen fertilizer	15,466,000	45
Delta Chemical, Buras, La.	Nitrogen fertilizer	8,892,000	45
Pacific Chemical, Franklin County, Wash.	Nitrogen fertilizer	5,735,000	45
Allied Chemical & Dye, Syracuse, N.Y.	Nitrogen fertilizer	24,450,000	45
Northern Chemical Industries, Sandy Point, Me.	Nitrophosphate fertilizers	3,955,000	65
Gulf Improvement, Pascagoula, Miss.	Nitrophosphate fertilizer	7,338,750	80
		7,361,250	45
Tennessee Corp., U.S. Phosphoric Products Div., East Tampa, Fla.	Phosphate fertilizer	1,396,000	45
Stouffer Chemical, Tacoma, Wash.	Phosphate fertilizer	320,000	45
Missouri Farmers Assn., Galena, Kans.	Phosphate fertilizers	3,233,330	45
Western Phosphates, Tooele County, Utah	Phosphate fertilizers	3,072,000	45
Thurston Chemical, Atlanta, Mo.	Phosphate fertilizers	830,000	75
		1,065,500	45
Federal Chemical, Danville, Ill.	Phosphate fertilizers	389,518	45
Tennessee Corp., East Tampa, Fla.	Phosphate fertilizers	275,000	45
Simplex Fertilizer, Pocatello, Idaho	Phosphate fertilizer	1,000,752	45
Coronet Phosphate, Tenor Mine, Fla.	Phosphate rock	850,313	45
Virginia-Carolina, Nichols, Fla.	Phosphate rock	1,646,981	50
		300,745	25
Brunswick-Baile-Collender, Muskegon, Mich.	Phosphate rock	174,838	65
International Minerals & Chemical, Polk County, Fla.	Phosphate rock	8,918,340	50
Armour & Co., Bartow, Fla.	Phosphate rock	5,608,000	50
Smith-Douglas, Birmingham County, III.	Phosphoric acid	439,000	45
Virginia-Carolina, Nichols, Fla.	Phosphate fertilizers	4,500,000	45
Mathieson Chemical, Pasadena, Tex.	Phosphate fertilizers	1,812,000	45
Best Fertilizers, Lathrop, Cal.	Phosphate fertilizers	471,000	45
Seaboard Fertilizer & Chemical, El Paso, Tex.	Phosphate fertilizers	290,638	45
American Agricultural Chemical, Pierce, Fla.	Phosphorus	875,443	45
Allied Chemical & Dye, Lawrence County, O.	Urea	4,200,000	45
American Cyanamid, Avondale, La.	Urea	7,500,000	45

#### CYCLIC ORGANICS

Dow Chemical, Freeport, Tex.	Benzene	1,100,000	90
Eastern States Chemical, Houston, Texas	Benzene	554,097	90
Koppers Company, Kubota, Pa.	Benzene and homologues	181,027	90
Old Dutch Refining, Muskegon, Michigan	Benzene, toluene	326,100	40
Shell Oil, Wilmington, Calif.	Benzene	100,000	90
Universal Oil, Mooringsport, La.	Benzene, toluene comps.	594,000	75
Union Oil of Calif., Wilmington, Calif.	Benzene, toluene	2,950,000	45
		6,663,000	65
		2,387,000	90
Sloss-Sheffield Steel, Birmingham, Ala.	Benzene	73,170	90
Monsanto Chemical, St. Louis, Mo.	Benzoic acid	252,500	50
Monsanto, Anniston, Ala.	Biphenyl, Aroclor	571,000	90
Phillips Petroleum Co., Phillips, Tex.	Cyclohexane	136,210	90
		8,250	40
Phillips Petroleum, Phillips, Tex.	Cyclohexane concentrate	371,000	65
Phillips Petroleum, Berger, Tex.	Cyclohexane	145,900	50
Salt Lake Refining, Salt Lake City, Utah	Cumene for phenol	1,230,990	90
		325,090	45
DuPont, Gibbstown, N.J.	Cumene	1,358,000	50
		402,000	40
		4,605,000	50
Quaker Oats, Memphis, Tenn.	Diphenylamine	204,000	50
Gamma Chemical, Great Meadows, N.J.	Aniline	107,000	60
Allied Chemical & Dye, Marcus Hook, Pa.	Furfuryl alcohol	546,250	50
Hooker Electrochemical, Niagara Falls, N.Y.	Hydroxyquinoline	74,884	60
Koker Chemical Div., Diamond Alkali, Houston, Texas	Lindane	351,000	45
Tennessee Products & Chem., Chattanooga, Tenn.	Lindane	411,700	45
Ethyl Corp., Baton Rouge, La.	Lindane	891,688	45
American Cyanamid, Willow Island, W. Va.	Lindane, trichlorobenzene	217,132	45
American Cyanamid, Willow Island, W. Va.	Melamine	2,815,000	45
Phillips Chemical, Pasadena, Tex.	Melamine	2,474,000	45
		615,000	45
2-Methyl-5-vinyl pyridine		3,119,000	45
Mononitrotoluene		500,000	40
Crude naphthalene		267,000	60
Naphthalene		1,012,000	60
Naphthalene		2,425,800	60
Naphthalene		363,000	50

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Methanol	Acetone
Ammonia	Methylamines

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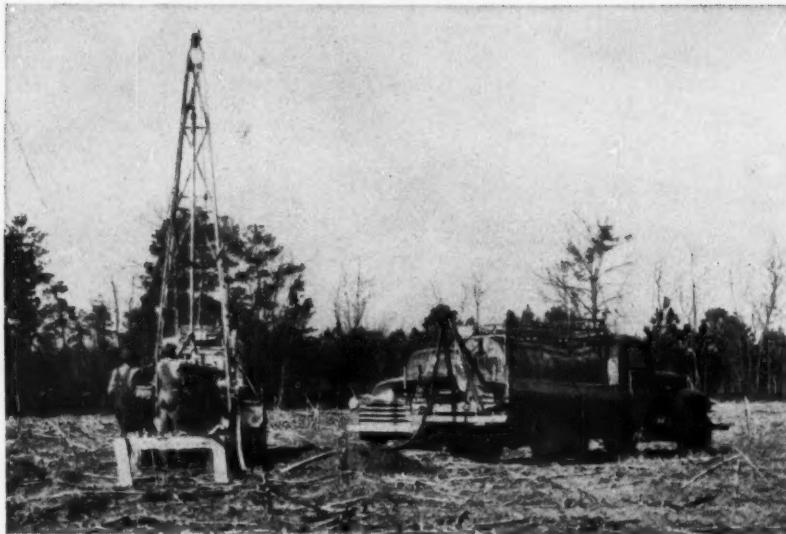


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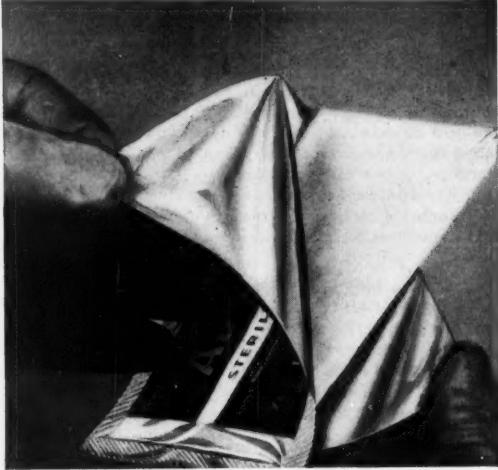
# Life ...on the



**CYANAMID DEVELOPS NEW BAUXITE FIELDS** and expands production of Aluminum Sulfate for use in paper mills, water works, sewage plants, tanneries, soap and ink making. As old bauxite fields are depleted, Cyanamid crews are continually making test drillings in new fields to see whether mining operations are feasible. New fields are located by intensive geologic surveys and are developed for mining when ore samples prove to be of proper chemical grades and value. Cyanamid-mined bauxite is made into Aluminum Sulfate at Cyanamid plants in New Jersey, Tennessee, South Carolina, Alabama, Ohio and Michigan.



**AEROLUBE® 92, NEW CYANAMID LUBRICATING OIL ADDITIVE**, has been specifically designed for use in Series 2 oils. These oils are recommended wherever fuels with high sulfur content are used, such as in Diesel tractors, or in high-output supercharged engines. AEROLUBE 92 combines oil antioxidant and bearing corrosion inhibition properties with highly effective alkaline detergency. Oils compounded with AEROLUBE 92 meet the recognized standards of low corrosivity to silver bearings.



**NEW RELIEF FOR SUFFERERS** from burns and other surface wounds now comes with the development of Aureomycin Packing and Aureomycin Dressing for topical application by Davis & Geck, Inc., a unit of Cyanamid. The new D&G antibiotic dressings and packings, now being used by surgeons and physicians to help promote faster healing and prevent infection, are an important advance in wound therapy and another example of the widespread use and importance of Aureomycin in combating infection and disease.

# Chemical Newsfront



**NEW ARMY UTILITY BOAT IS LIGHTER, FASTER, STRONGER** than wooden boat. Molded of Fiberglas-reinforced LAMINAC® Resin, the boat showed great all-over strength and ruggedness during punishing tests. Damages made during tests were easily repaired by unskilled personnel. Low displacement of lightweight boat gives 30% greater capacity than wooden model. LAMINAC, Cyanamid's versatile laminating resin, continues to be used in new and valuable ways by the plastics industry.

**A NEW DAY IN TEXTILES** is dawning with the introduction of newer synthetic fibers that rival silk for softness, wool for warmth, —yet are moth- and mildew-proof, resistant to shrinkage, sunlight, salt air and chemical fumes. Key chemical used in the production of many of these newer synthetics is AERO\* Acrylonitrile, produced by American Cyanamid, which is also developing a new acrylic fiber of its own. \*Trade-mark

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## DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Reilly Tar & Chemical, Cleveland, Ohio	Naphthalene	903,415	60
Reilly Tar & Chemical, Granite City, Ill.	Crude naphthalene	11,880	60
United States Steel, Clairton, Pa.	Naphthalene	1,200,000	60
United States Steel, Gary, Ind.	Naphthalene	3,817,000	60
Tennessee Coal, Iron & Railroad, Birmingham, Ala.	Naphthalene	1,150,000	60
Jefferson Chemical, Port Neches, Tex.	Nonyl phenol	280,500	40
Monsanto Chemical, Monsanto, Ill.	Parachlorophenol	290,000	60
Heyden Chemical, Garfield, N.J.	Pentacetylthritol	1,207,465	65
Standard Oil of Cal., San Francisco, Cal.	Phenol	723,000	45
Hercules Powder, Paulsboro, N.J.	Phenol	12,000	15
Koppers Pittsburgh, Kubota, Pa.	Phthalic Anhydride	8,500,000	50
American Cyanamid, Bridgeville, Pa.	Phthalic anhydride	4,000,000	50
Montrose, St. Louis, Mo.	Phthalyl chloride	6,165,000	30
Reilly Tar & Chemical, Indianapolis, Ind.	Crude pyridine	310,000	45
Heyden Chemical, Garfield, N.J.	Resorcinol	506,328	50
Dow Chemical Co., Midland, Mich.	Salicylic acid	397,710	65
Pathfinder Chemical, Point Pleasant, W. Va.	Styrene	1,034,000	55
Dow Chemical, Freeport, Tex.	Styrene	11,496,320	60
Dow Chemical, Midland, Mich.	Styrene	9,400,000	60
Pennsylvania Industrial Chemical, Jefferson, Pa.	Styrene	3,250,000	60
Couloids & Carbon Chemical, Kanawha County, W. Va.	Styrene	3,807,650	50
Morbon Corp., Gary, Ind.	Styrene	1,081,700	60
Monsanto Chemical, Long Beach, Calif.	Styrene	70,045	60
Dow Chemical, Torrance, Calif.	Styrene	133,120	45
Monsanto Chemical, Springfield, Mass.	Styrene	1,723,000	45
Foster Grant, Port Arthur, Tex.	Styrene	87,565	45
Goodyear Tire & Rubber, Akron, Ohio	Styrene monomer	4,284,450	60
Monsanto Chemical, Addyston, Ohio	Styrene	1,762,000	45
Monsanto Chemical, Springfield, Mass.	Styrene	3,673,270	45
Catalin Corp. of America, Newark, N.J.	Styrene	157,915	45
Chemical, Midland, Mich.	Styrene	629,010	45
Hoechst Electrochemical, Niagara Falls, N. Y.	Styrene	182,280	60
Cathio Chemicals, Lake County, Ohio	Trichloro-benzene	470,500	45
Monsanto Chemical, Anniston, Ala.	R-Trichloromethyl-thiotetrahydro-phthalimide	800,000	45
	Toluylene diisocyanate	211,000	70

## PLASTICS, RESINS, POLYMERS, PLASTICIZERS

American Aniline & Extract, Philadelphia, Pa.	Acrylic nylon size	\$ 84,262	50
Carter Oil, Billings, Mont.	Butylene-propylene polymer	845,000	65
Hercules Powder, Parlin, N. J.	Cellulose acetate flake	1,420,000	40
	Cellulose acetate molding powder	2,024,179	45
Strux Corp., Lindenhurst, N. Y.	Cellulose acetate	409,412	45
Tennessee Eastman, Kingsport, Tenn.	Cellulose acetate	123,168	60
Shell Chemical, Houston, Tex.	Cellulose esters	4,485,000	45
	Epon resins	1,135,426	45
Union Carbide, Institute, W. Va.	Epon resins	4,063,900	50
Hercules Powder, Hopewell, Va.	Ethyacrylate, ammonium sulfate	472,900	45
Esso Standard Oil, Linden, N. J.	Ethyacrylate, ammonium sulfate	226,100	15
American Cyanamid, Wallingford, Conn.	Ethyacrylates	476,000	45
American Cyanamid, Wallingford, Conn.	Ethyacrylate	315,865	45
Jefferson Chemical, Port Neches, Tex.	Iodoplylene, polybutene, lubricating oil additives	6,480,950	65
Rohm & Haas, Deer Park, Tex.	Iodoplylene, polybutene, lubricating oil additives	1,148,150	45
Rohm & Haas, Bristol, Pa.	Melamine resins	803,161	45
Hercules Powder, Hopewell, Va.	Melamine resins	77,963	45
Allied Chemical, location undisclosed	Metal phenolates	751,800	65
Du Pont, Seaford, Del.	Melamine resins	248,200	45
Du Pont, Martinsville, Va.	Hydrogen cyanide	1,113,576	80
Durez Plastics & Chemicals, North Tonawanda, N. Y.	Ethyl acrylate, methyl methacrylate	7,465,734	40
Catalin Corp., Fords, N.J.	Methyl acrylate	4,791,703	80
Snyder Chemical, Bethel, Conn.	Methyl acrylate	1,263,449	80
Heresity & Chemical, Manitowoc, Wis.	Nitrocellulose	535,000	55
Union Carbide & Carbon, Middletown, Ohio	Nitrocellulose products	781,260	45
United States Plywood, Portland, Ore.	Nylon yarn	23,165,000	40
Allied Chem & Dye, Philadelphia, Pa.	Nylon yarn	6,453,000	40
Monsanto Chemical, Everett, Mass.	Nylon yarn	13,764,000	40
Hercules Powder, Brunswick, Ga.	Phenolic resins	3,346,700	45
American Polymer, Peabody, Mass.	Phenolic resins	300,000	45
Pan-Am Southern, El Dorado, Ark.	Phenolic resins	77,000	45
Union Carbide, Bound Brook, N. J.	Phenolic resins	74,700	45
Du Pont, Orange, Tex.	Phenolic resins	5,740,000	55
Tennessee Eastman, Harrison, Tex.	Phenolic resins	56,375	45
Union Carbide & Carbon, Los Angeles County, Calif.	Phthalate esters	818,400	45
Union Carbide & Carbon, Seadrift, Tex.	Phthalate esters	2,207,800	45
Union Carbide, South Charleston, W. Va.	Pine oil, turpentine, resins	833,400	45
Pathfinder Chemical, Point Pleasant, W. Va.	Para cymene	407,090	50
Shawinigan Resins, Springfield, Mass.	Plastics	89,400	55
Shawinigan Resins, Springfield, Mass.	Polybutylene	215,000	65
Acme Resin, Chicago, Ill.	Polyester resins	349,600	60
Hercules Powder, Hattiesburg, Miss.	Polystyrene resins	1,536,250	45
	Polyethylene	6,195,000	60
	Polyethylene	7,000,000	60
	Polyethylene	36,323,000	60
	Ethylen oxide, polyethylene	66,300,474	50
	Polyethylene	1,405,700	60
	Polystyrene resins	2,397,650	45
	Polyvinyl butyl resin	175,750	50
	Polyvinyl formal resins	322,250	50
	Resins	317,935	55
	Rosin Amine D	532,750	45

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## LABOR . . . . .

**Pre-Holiday Peace:** Two strike settlements and a sprinkling of other new contracts make for a relatively tranquil moment in the chemical processing industry's industrial relations this week before Thanksgiving Day.

• Most important is the settlement of the strike that halted alkali production at Columbia-Southern's plant in Corpus Christi, Texas, for more than seven weeks. It was the first time the 18-year-old plant had been shut down by a strike, and a company spokesman estimated that the 475 striking members of United Gas, Coke & Chemical Workers (CIO) lost a total of around \$300,000 in wages during the period. The one-year contract provides for an 11¢/hour general wage increase and three weeks' vacation after 15 years service, both of which terms were offered by the company before the strike started. However, local union President R. M. Rigby says the pact is "a long step in getting our inequities solved and bringing our contract up to par with standard contracts around the country." He says the previous offer contained unsatisfactory language and working conditions and inequities among certain jobs.

• Both sides declined to reveal terms of the settlement that ended a four-day walkout of about 500 members of the AFL Plumbers & Steamfitters at the Indiana Ordnance Works, Charlestown, Ind. The contractor, Blaw-Knox, is reconditioning the big Government-owned powder plant for future operation by Du Pont. The stoppage was blamed on the firing of a foreman and a worker who were members of the union.

• While negotiating its new 7¢ general wage increase with North American Cyanamid, Local 165 of International Chemical Workers Union (AFL) also gained some 200 new members at the Welland Works near Niagara Falls, Ontario. In addition, a 2¢ boost will go to employees in five work units through reclassification.

• Higher shift premium and additional fringe benefits are provided in the contract that will run to Nov. 1, 1953, for workers at the General Aniline Works in Linden, N. J. The contract is with the General Aniline Employees Organization, an independent

## BUSINESS & INDUSTRY

union representing 1,385 of the plant's 1,750 employees. Shift differential is up one cent to 9¢/hour; there will be an 8¢/hour premium for work with certain equipment and in certain hours; and other fringe benefits. The contract retains a cost-of-living escalator clause that resulted in a 2.77% increase last February.

• Linde Air has signed new contracts covering its plants in Birmingham, Ala., and Jackson, Miss. The employees, members of ICWU, will receive a 5¢ across-the-board wage increase and other benefits, including more liberal pension and insurance plans.

• A general wage rise of 11¢ will bring to \$1.91/hour the average wage at National Carbide's Bells Lane plant near Louisville, Ky. The new two-year agreement, subject to WSB approval, covers about 400 members of the AFL Firemen & Oilers union.

• Three months of negotiations finally produced a new contract between Dominion Alkali & Chemical and the AFL Chemical Workers at Beauharnois, Quebec. Wage increases range from 6 to 10¢/hour, and shift differentials have been boosted by 2¢.

**No Merger Near:** Unification rumors sprang up briefly this week, some observers speculating that the election of an administration allegedly unfriendly to unions and the recent death of CIO President Philip Murray might make this a propitious time to merge the nation's labor organizations. However, officials of both the AFL Chemical Workers and CIO Gas-Coke indicated continued coolness to the idea. An ICWU officer said he thought "strong leaders like Murray" would be needed to achieve unity, and a Gas-Coke leader said he didn't see that Murray's death changed the situation with respect to unification. Dennis Lewis, head of United Mine Workers District 50, declined to comment.

**Champion Strikers:** Possibly the strongest labor group in the country this year is Local 146 of the AFL Chemical Workers, which is now picketing Stauffer's synthetic citric acid plant at Nipomo, Calif., after its seven-month strike against Johns-Manville in nearby Lompoc. The citric acid plant, employing just 17 persons, went on-stream Aug. 1, and Local 146 won the bargaining agency for the 10 hourly-paid workers on Sept. 3. On Oct. 17, the union struck for a 20¢ hike in the \$1.45/hour basic wage rate.

While their Lompoc strike was still

### DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Texas Eastern, Harrison, Tex.	Synthetic hard wax	3,800,000	50
Monsanto Chemical, Springfield, Mass.	Synthetic resins	500,000	35
Commercial Solvents, Terre Haute, Ind.	Tributyl phosphate	232,900	45
Monsanto Chemical, St. Louis, Mo.	Tricresyl phosphate	780,000	45
Dow Chemical, Midland, Mich.	Plasticizers	2,571,000	45
Diamond Alkali, Deer Park, Houston, Tex.	Vinyl resins	2,526,000	45
Dow Chemical, Midland, Mich.	Vinyl resins	10,307,600	45
Dow Chemical, Albany's Point, Conn.	Vinyl resins	9,982,000	45
Dow Chemical, Freeport, Tex.	Vinyl resins	5,930,000	45
Presto Tire & Rubber, Pottstown, Pa.	Vinyl resins	6,022,700	45
General Tire & Rubber, Calvert City, Ky.	Vinyl resins	5,319,000	45
B. F. Goodrich Chemical, Calvert City, Ky.	Vinyl resins	5,871,100	45
Monsanto Chemical, Springfield, Mass.	Vinyl resins	92,000	45
Monsanto Chemical, Texas City, Texas	Vinyl resins	3,681,250	45
National Starch Products, Plainfield, N.J.	Vinyl resins	253,475	45
Shawinigan Resins, Springfield, Mass.	Vinyl resins	1,052,950	45
Union Carbide & Carbon, Texas City, Tex.	Vinyl resins	13,837,000	45
U. S. Rubber, Painesville, Ohio	Vinyl resins	3,297,725	45
<b>ACYCLIC ORGANICS</b>			
Air Reduction, Louisville, Ky.	Acetylene	81,715	50
Air Reduction, Calvert City, Ky.	Acetylene	1,001,000	50
Dye Oxygen, Phoenix, Ariz.	Acetylene	18,000	50
Du Pont, Victoria, Tex.	Adiponitrile	33,475,000*	45
Du Pont, Orange, Tex.	Adipic acid, hexamethylene diamine	4,549,000*	45
Du Pont, Belle, W. Va.	Adipic acid, hexamethylene diamine	1,630,000*	45
Ethyl Corp., Baton Rouge, La.	Antiknock com-pounds	1,563,700	65
Dow Chemical, Freeport, Tex.	Butadiene	2,591,600	50
Dow Chemical, Midland, Mich.	Butadiene	3,480,000	60
Firestone Tire & Rubber, Pottstown, Pa.	Butadiene	136,400	60
Publicker Industries, Eddington, Pa.	Butadiene, butylene	961,500	60
Union Carbide & Carbon, Texas City, Tex.	Butadiene	4,309,060	60
Union Carbide & Carbon, South Charlestown, W. Va.	Butadiene	893,300	60
Diamond Alkali, Painesville, Ohio	Butyl, ethyl, propanediol, ethylhexyl amine	208,000	45
Stauffer Chemical, Louisville, Ky.	Carbon tetrachloride	1,300,000	45
Diamond Alkali, Painesville, Ohio	Chloroform	2,524,000	45
National Petro-Chemicals, Tuscola, Ill.	Perchloroethylene	741,000	45
Shell Chemical, Houston, Tex.	Ethyl chloride	1,070,000	50
Shell Oil, Harris County, Tex.	Ethyl chloride	4,515,950	65
Dow Chemical, Freeport, Tex.	Ethyl chloride	6,232,000	65
Gulf Oil, Port Arthur, Tex.	Ethyl chloride	412,000	45
Shell Chemical, Houston, Tex.	Ethyl chloride	410,000	15
Dow Chemical, Midland, Mich.	Ethyl chloride	2,645,000	50
Jefferson Chemical, Port Neches, Tex.	Ethylene	75,000	15
Wyandotte Chemicals, Wyandotte, Mich.	Ethylene	4,827,000	50
Borden, Demopolis, Ala.	Ethylene	1,884,000	25
Commercial Solvents, Peoria, Ill.	Ethylene	588,800	60
Commercial Solvents, Seattle, Wash.	Ethylene, propylene	227,330	50
Commercial Solvents, Agnew, Calif.	Ethylene	1,214,570	75
Monsanto Chemical, Springfield, Mass.	Ethylene dibromide	1,948,000	85
Hercules Powder, Mansfield, Mass.	Ethylene oxide	18,700,000	50
Heyden Chemical, Fords, N. J.	Ethylene oxide	6,200,000	50
Fairmount Chemical, Newark, N. J.	Formaldehyde	1,028,610	55
Dewey & Almy Chemical, Acton, Mass.	Formaldehyde	385,000	55
Allied Chemical & Dye, location not given	Formaldehyde	723,900	55
Dewey & Almy, Acton, Mass.	Formaldehyde	450,000	55
Allied Chemical & Dye, Hopewell, Va.	Formaldehyde solutions	600,000	55
Commercial Solvents, Sterlington, La.	Formaldehyde	2,379,904	55
Allied Chemical & Dye, Moundsville, W. Va.	Hexamine	2,182,150	40
Rohm & Haas, Philadelphia, Pa.	Hydrazine	217,003	50
Gulf States, Baton Rouge, La.	Refined isoprene	146,350	90
Union Carbide & Carbon, Texas City, Tex.	Maleic anhydride, fumaric acid	440,000	60
Columbia Southern, Barberston, Ohio	Maleic anhydride	4,551,500	50
Southern Alkali (now Columbia-Southern), Louisville, Ky.	Propane, propylene	476,000	50
Gulf Oil, Philadelphia, Pa.	Methanol, formaldehyde	11,900,000	45
Hardesty Chemical, Dover, Ohio	Methylamines	4,241,000	45
Rohm & Haas, Philadelphia, Pa.	Methylene chloride	434,535	60
Quimico, Contra Costa Co., California	Methylene chloride	2,500,000	60
Hoover-Drexel, Ashtabula, Ohio	Oxylyl alcohol	1,119,000	60
Hoover-Drexel, Tacoma Wash.	Oxygen, methanol	326,000	70
American Petrochemical, Lake Charles, La.	Perchloroethylene	9,040,360	50
<b>SULFUR, SULFURIC ACID</b>			
Allied Chemical & Dye, Monument, N. Mex.	Sulfur	474,163	70
Esso Standard Oil, Linden, N.J.	Sulfur	1,290,000	70
Freepoint Sulphur, Flamingo Parish, La.	Sulfur	260,000	40
Globe Oil & Refining, Lemont, Ill.	Sulfur	13,825,000	70
Imperial Sulfur and Acid, Farmington, N. Mex.	Sulfur	182,890	70
Phillips Chemical, Gaines County, Tex.	Sulfur	474,163	70
Seaboard Oil & Del., Park County, Wyo.	Sulfur	240,000	70
Shell Oil, New Orleans, Tex.	Sulfur	904,800	70
Sid Richardson Petroleum, Winkler City, Tex.	Hydrogen sulfide	86,500	70
Simpson Creek Collieries, Baltimore, Md.	Sulfur	177,350	70
Stanolind Oil & Gas, Hockley County, Texas	Sulfur	433,040	70
Stanolind Oil & Gas, North Cowden field, near Midland, Tex.	Sulfur	460,000	70
	Sulfur	202,000	70

\* Subject to later reduction when cost of certain facilities is determined.

# ONLY HUDSON GUARANTEES TO REPLACE MULTIWALL SACKS DAMAGED ON YOUR PACKER

Exceptional quality of Hudson Multiwall Sacks permits unusual guarantee.

PALATKA, FLA. Heretofore each Multiwall Sack user has individually absorbed the cost of any sacks which break on his filling and closing machines. But now, Hudson becomes the first and only Multiwall Sack manufacturer to guarantee to replace such broken sacks at no further cost.

According to experts, the average user of Multiwall Sacks normally expects to write off the loss of certain sacks during each day's run. These sacks are damaged due to circumstances beyond control of the Multiwall Sack manufacturer. Overloading of sacks, malfunction of packing or closing machines, or inattention on the part of the operator are some of the common causes of sack breakage.

Hudson is confident that the quality of the Multiwall Sacks they produce can eliminate most of this breakage. That is why they are willing to offer you complete protection through filling and closing operations. Only a company with a superior product would dare offer their customers such a guarantee.

## First in industry to offer this replacement guarantee



T. H. Mittendorf  
NEW YORK CITY. "Hudson is the first and only Multiwall Sack manufacturer to offer a written replacement guarantee on breakage of Multiwall Sacks," declared T. H. Mittendorf, Hudson's Vice President in Charge of Sales. "Hudson Multiwall Sacks lead the industry as



Hudson Representative, Harry Rafferty (center), points out the packing and closing operations covered by Hudson's new guarantee, to J. Dummett (left), Plant Supt. for Wedron Silica Company.

being the world's most fully guaranteed. We believe they represent the best buy on today's market."

"Under the terms of our unusual guarantee the buyer is protected from the moment he accepts custody of the sacks until the sacks have successfully passed his filling and closing operations. This guarantee greatly extends our usual warranty of quality and workmanship," Mr. Mittendorf pointed out.

## Goes into immediate effect

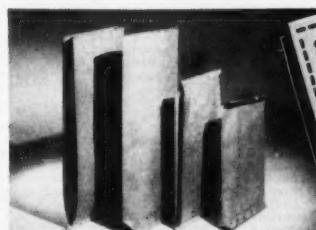
The new Hudson guarantee plan went into effect with all sacks purchased on or after Sept. 15, 1952. Early reports indicate that the guar-

antee is being enthusiastically received.

Prompt delivery on all contracts are assured by the tremendous capacity of Hudson's fully integrated mill at Palatka, Fla. High quality is maintained through inspection and controls at every step from tree to the finished Hudson Multiwall Sack. Hudson packaging engineers see that sacks conform to the exact needs of each user.

## Urge Multiwall Sack users to write for facts

The Hudson Pulp & Paper Corp. invites all users of Multiwall Sacks to learn how they can benefit by using Hudson's new guarantee.



Hudson Multiwall Sacks are available pasted or sewn, and in valve and open mouth styles.

Send for full details:  
Tell me, without obligation, about the many advantages of your new Multiwall guarantee.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_  
CITY \_\_\_\_\_

By sending this card, I am promising to keep my name and address confidential, and that I will not sell it to anyone else.

Hudson Pulp & Paper Corp.  
Dept. 122, 505 Park Ave., New York 22, N.Y.

## BUSINESS & INDUSTRY

on, members of the local defeated a "raids attempt" on the part of another AFL union, the International Brotherhood of Teamsters. It appeared that the Teamsters' local had tried to use as an organizing nucleus a group of Johns-Manville employees who were willing to give up the strike.

ICWU officials are expressing "satisfaction" with health and safety provisions in the Lompoc settlement. They say the company added to its pre-strike offer a clause requiring installation of new dust elimination equipment at a cost of around half a million dollars, and will even air-condition the trucks used to haul the diatomaceous earth at the plant.

**Capital Currents:** At Washington, there's gossip and guesses about the people who'll be in the labor relations line-up next year (probably: Taft, chairman of Senate committee on labor; Pennsylvania's Samuel McConnell, chairman of the House committee on labor; and possibly Harold Stassen or ODM Manpower Boss Arthur S. Flemming, Secretary of Labor); but these probably won't mean so much to CPI industrial relations managers as the changes expected to be made in the Taft-Hartley act. These include:

- Extending the non-Communist affidavit to employers who want to use NLRB services. (Now only union leaders must sign this affidavit.)

- Letting economic strikers who have been replaced vote in elections.

- Easing the curb on secondary boycotts so that employees may refuse to do work shifted from a struck plant.

- Putting union welfare funds under supervision of the Labor Department.

**Holiday Awards:** Under new WSB rules, chemical companies may grant these holiday concessions without obtaining specific Government approval:

- Give a Christmas or year-end bonus of up to \$40 in cash or gifts.

- Give workers three extra days off, with pay—namely, the Fridays after Thanksgiving, Christmas and New Year's Day.

Also from Washington comes word that labor turnover rates increased in the chemical industry during September. For every 100 employees in the industry, there were 2.5 "quits," 0.5 lay-offs, 0.3 firings, and 0.2 leaving work for military service, retirement and other reasons. Thus there was an average of 3.5 persons separated from these companies during the month, compared to an average of 2.9 new hires for each 100 employees.

### DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Union Oil of Calif., Wilmington, Calif.	Sulfur, ammonium sulfate, fuel oil	679,200	70
	Sulfur	70,800	45
	Sulfur	416,000	70
	Sulfur	34,000	45
Vermont Copper, South Strafford, Vt.	Pyrrhotite sulfur	75,114	70
Allied Chemical & Dye, River Rouge, Mich.	Sulfuric acid	406,000	70
American Antifeed Products, Lock Haven, Pa.	Sulfuric acid	203,356	70
American Zinc Co. of Illinois, Dumas, Tex.	Sulfuric acid	4,372,700	70
American Zinc of Ill., Fairmont City, Ill.	Sulfuric acid	3,355,301	70
Blockson Chemical, Joliet, Ill.	Sulfuric acid	4,000,000	70
Consolidated Chemical Industries, Dayton, Texas	Sulfuric acid	5,945,000	70
Cornwell Chemical, Cornwell Heights, Pa.	Sulfuric acid	481,000	45
Eagle-Picher, Galena, Kans.	Sulfuric acid	3,565,529	70
Minnesota Mining & Mfg., Copley Township, Minn.	Sulfuric acid	680,000	45
Monsanto Chemical, Monsanto, Ill.	Sulfuric acid	1,900,000	70
Monsanto Tide Water Associated, Anacortes, Wash.	Sulfuric acid	2,050,000	35
National Lead, St. Louis, Mo.	Sulfuric acid	957,346	70
Stauffer Chemical, Vernon (Los Angeles), Cal.	Sulfuric acid	1,000,000	45
Stauffer Chemical, Compton, Calif.	Sulfuric acid	250,000	70
Sullivan Mining, Shoshone County, Idaho	Sulfuric acid	4,352,370	70
Tennessee Copper, Copperhill, Tenn.	Sulfuric acid	2,944,500	70

### PHARMACEUTICALS, ANTIBIOTICS

American Cyanamid, Pearl River, N. Y.	Antibiotics	5,280,000	45
Bristol Laboratories, East Syracuse, N. Y.	Antibiotics	9,203,766	50
Merck & Co., Danville, Pa.	Antibiotics	1,292,000	50
Chas. Pfizer, Long Island, N. Y.	Antibiotics	4850,000	50
E. R. Squibb, New Brunswick, N. J.	Antibiotics	3,442,531	60
Wyeth Pharmaceuticals, West Chester, Pa.	Antibiotics	3,240,332	60
Wyeth, Marietta, Pa.	Antitoxins, biologicals	1,566,707	30
Lindsay Chemical, West Chicago, Ill.	Cerium oxalate	307,519	45
Merck & Co., Rahway, Linden, N. J.	Cortisone	12,753	85
Merck & Co., Danville, Pa.	Cortisone	362,150	50
Monsanto Chemical, St. Louis, Mo.	Cortisone	978,900	50
Upjohn, Kalamazoo, Mich.	Cortisone	18,415,000	50
Commercial Solvents, Terre Haute, Ind.	Cortisone	3,655,902	50
Dow Chemical, Pittsburgh, Calif.	Dextran	109,000	70
Merck & Co., Danville, Pa.	Methionine	1,502,100	40
New York Soaps, Inc., Newark, N.J.	Streptomycin	714,710	40
Commercial Solvents, Terre Haute, Ind.	Opium derivs.	313,885	60
Eli Lilly, Indianapolis, Ind.	Penicillin	252,450	50
Parke, Davis, Detroit, Mich.	Penicillin, streptomycin	1,425,800	55
Chas. Pfizer, Croton, Conn.	Penicillin	18,451,800	55
Abbott Laboratories, North Chicago, Ill.	Penicillin	7,300,000	60
National Drug, Swifwater, Pa.	Pharmaceuticals	300,000	45
Sterling Drug, Cincinnati, Ohio	Vaccines, antitoxins	83,314	45
	Anti-malarial drugs	47,464	60

### OTHER INORGANICS

National Lead, Perth Amboy, N. J.	Antimony oxide	194,066	60
Pacific Coast Borax, Wilmington, Calif.	Boric acid	199,074	30
Dow Chemical, Midland, Mich.	Brine	1,780,000	50
Dow Chemical, Midland, Mich.	Bromine brine wells	275,500	50
Dow Chemical, Midland, Mich.	Bromine	1,101,990	50
Dow Chemical, Midland, Mich.	Bromine brine wells	512,745	50
Michigan Chemical, Monroe, Mich.	Liquid Bromine	122,056	50
Monsanto Chemical, Muscle Shoals, Ala.	Calcium carbide	361,058	65
Midwest Carbide, Mayes County, Okla.	Calcium carbide	3,975,000	50
Pacific Carbide & Alloys, Portland, Ore.	Calcium carbide	2,027,000	50
Diamond Alkali, Kearny, N.J.	Calcium carbide	91,513	50
Diamond Alkali, Painesville, Ohio	Chromic acid	118,440	45
Mineral Pigments, Muirkirk, Maryland	Chromic acid	195,450	45
Aluminum Ore Co., East St. Louis, Ill.	Pure chromium oxide	98,300	60
Reynolds Metal, Coopersburg, Ala.	Cryolite	750,000	85
Virgin-Carbone Chemical, Nichols, Fla.	Cryolite	153,550	70
Allied Chemical & Dye, North Clayton, Del.	Cryolite	474,000	85
Kaiser Aluminum & Chemical, near Fallon, N.M.	Fluorspar	61,272	50
Ozark-Mohoning Defense Co., Deming, Grant County, N. Mex.	Fluorspar	410,700	70
Ozark-Mohoning, Jackson County, Colo.	Fluorspar, acid grade	589,836	60
Reynolds Mining Corp., Poncha Springs, Colo.	Fluorspar	752,230	60
J. R. Simplot, Mead, Cove, Idaho.	Fluorspar	393,481	70
Eagle-Picher, Joplin, Mo.	Fluorspar	174,740	70
American Zinc of Ill., Fairmont City, Ill.	Germanium	22,850	70
Allied Chemical & Dye, Baton Rouge, La.	Germanium oxide	90,000	70
Nytro Chemicals, Houston, Tex.	Hydrofluoric acid	82,000	80
Harshaw Chemical, Cleveland, O.	Hydrofluoric acid	88,737	40
Stanley Works, New Britain, Conn.	Anhydrous hydrogen fluoride	275,000	65
National Lead, Philadelphia, Pa.	Iron sulfate	75,714	40
Metalloy Corp., St. Louis Park, Minn.	Lead compds.	106,422	45
Foote Mineral, Kings Mountain, N.C.	Lithium chemicals	131,050	80
Western Electrochemical, Henderson, Nev.	Lithium ores	225,000	70
Tennessee Corp., Washington, D.C.	Manganese dioxide	161,746	70
Baumhoff-Marshall, Cascade, Ida.	Manganese sulfate	737,465	70
Ohio-Apex, Nitro, W.Va.	Monazite sands	160,000	65
Montgomery Corp. of America, location not specified	Phosphorus oxychloride	181,605	70
American Smelting & Refining, Barber, N.J.	Rare earth concentrates	549,427	75
Kawasaki Chemical, Boyertown, Pa.	Selenium	755,540	70
Davison Chemical, Curtis Bay, Baltimore, Md.	Selenium	25,507	65
National Lead, St. Louis, Mo.	Silica gel	315,703	45
Oldbury Electro-Chemical, Lowndes County, Miss.	Silicate white lead	150,602	45
Pennsylvania Salt, Calvert City, Ky.	Sodium chlorate	3,250,000	60
Pennsylvania Salt of Washington, Portland, Ore.	Sodium chlorate	1,452,647	60
Diamond Alkali, Dallas, Tex.	Sodium chlorate	702,000	60
Foote Mineral, Kings Mountain, N.C.	Sodium silicate	392,390	55
	Spodumene, columbite, beryllium ore	144,828	70

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**ELECTRONIC TUBE CHEMICALS**  
to a defined purity in TONNAGE lots



...for defense needs

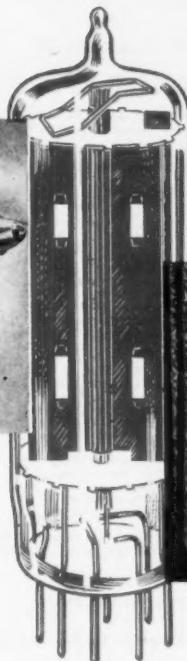
National defense needs are multiplying the problems of many companies who are in need of tonnage chemicals to exacting specifications.

Particularly in demand are chemicals required for electronic purposes.

If you need such chemicals — either for defense or for civilian use, or for both — inquire first of Baker. Baker is adjusting its facilities to meet emergency needs, and can supply you with tonnage chemicals to known standards of purity. We will also be glad to discuss, in confidence, your requirements for tonnage chemicals to your own exacting specifications.

Baker has long been trained in the art of exactness. It has, for many years, supplied chemicals to a defined purity "by the ton." We invite you to call upon Baker — and to depend upon Baker as a reliable source of supply.

J. T. Baker Chemical Co., Executive Offices and Plant,  
Phillipsburg, New Jersey.



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CHEMICALS**

- Baker R500  
(a prepared cathode spray)  
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Plants:  
Oakland, Calif.  
Bayonne, New Jersey

DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certifed
Lithium Corp. of America, Hill City, S.D.	Spodumene concentrate	157,591	70
Tantalum Defense Corp., North Chicago, Ill.	Tantalum potassium fluoride	450,050	85
Lindsay Chemical, West Chicago, Ill.	Thorium nitrate	1,750,000	70
American Cyanamid, Savannah, Ga.	Titanium dioxide	13,875,000	45
Kawicki Chemical, Baytown, Tex.	Titanium, zirconium fluorides	20,308	70
North Metal & Chemical, York, Pa.	Tungstic acid	72,323	60
International Minerals & Chem., Polk County, Fla.	Uranium	800,000	75
National Lead, Elwood City, Pa.	Zirconium tetrachloride	73,930	65
Carborundum, Cincinnati, Ohio	Zirconium, hafnium	2,443,000	85

MISCELLANEOUS

Revlon Products, Flemington, N.J.	Aerosol insecticides	44,490	45
Detrex Corp., Wyandotte, Trenton, Mich.	Alkali cleaners	664,590	45
Nuodex Products, Newark, N.J.	Aluminum soap	77,895	55
Koppers Company, Oil City, Pa.	Aviation fuel antioxidant	195,792	50
Sinclair Refining, Houston, Tex.	Barium sulfonate	98,650	65
Pennsylvania Salt Mfg. Co., Wyandotte, Mich.	Super tropical bleach for military use	282,762	70
Hercules Powder, Hattiesburg, Miss.	Comphene	527,000	45
Dow Chemical, Freeport, Tex.	Chemical research	2,600,000	45
Diamond Alkali, Painesville, O.	Chemicals	4,984,500	45
Dow Chemical, Freeport, Tex.	Magnesium, etc.	625,000	45
Dow Chemical, Midland, Mich.	Chloroform, hydrochloric acid	215,000	60
E. I. du Pont, Deepwater Point, N.J.	Chemicals	228,500	45
Monsanto Chemical, Monsanto, Ill.	Chemicals	1,199,190	45
Monsanto Chemical, St. Louis, Mo.	Chemicals	998,000	45
Monsanto Chemical, Nitro, W.Va.	Chemicals	5,224,300	45
Pennsylvania Industrial Chemical, Chester, Pa.	Chemicals	40,000	85
Union Carbide & Carbon, Niagara Falls, N.Y.	Chemicals	795,000	45
Pittsburgh Coke & Chemical, Neville Island, Pa.	Chemicals	270,900	45
Columbus-Southern, Barberston, Ohio	Chemicals	2,188,000	45
Ethyl Corp., Baton Rouge, La.	Chemicals	1,900,000	45
Monsanto Chemical, Nitro, W.Va.	Chemicals	1,150,000	45
Monsanto, St. Louis, Mo.	Chemicals	73,300	30
Rohm & Haas, Bristol, Pa.	Chemicals	7,640,800	60
Monsanto Chemical, Monsanto, Ill.	2,4-D	1,207,800	50
Continental Oil, Ponca City, Okla.	2,4-D esters	165,000	45
Lubrizol, Wickliffe, Ohio	Herbicide	5,000,000	45
Shell Chemical, Martinez, California	Herbicide	3,963,000	45
Edwal Laboratories, Ringwood, Ill.	Herbicide	2,700,000	35
Arnold Hoffman, Dighton, Mass.	Herbicide	124,700	45
Ciba States, Ltd., Town River N.J.	Hydrodynamic fluids	315,000	45
Monsanto Chemical, Nitro, W.Va.	Hydrodynamic oil components	605,265	65
Vitro Chemical, Salt Lake City, Utah	Hydrogenated products	68,366	15
American Cyanamid, Bound Brook, N.J.	Lubricating oil additives	539,880	60
United States Rubber, Naugatuck, Conn.	Lubricating oil additives	326,310	65
Commercial Solvents, New York	Lubricating oil additives	388,942	50
Lubrizol, Deer Park, Tex.	Lubricating oil additives	328,219	40
Lubrizol, Wickliffe, Ohio	Lubricating oil detergents	645,640	15
Metal	Lubricating oil detergents	175,000	15
Formaldehyde bisulfite	Lubricating oil detergents	161,953	65
Chemicals	Lubricating oil detergents	191,770	50
Military chemicals	Lubricating oil detergents	21,350	45
Military chemicals	Metal	11,600	15
Military chemicals	Formaldehyde bisulfite	118,500	45
Military chemicals	Chemicals	9,500	45
Military chemicals	Military chemicals	20,832	45
Military chemicals	Military chemicals	315,314	50
Military chemicals	Military chemicals	2,746,500	50
Military chemicals	Military products	229,000	80
Military products	Military products	838,114	80
Military products	Military textile dye	99,000	50
Military products	Miticide	779,250	45
Military products	Nitroparaffins	13,195,300	60
Military products	Oil additives	444,437	65
Military products	Oil additives	548,637	45
Military products	Oil additives	655,807	15
Oil additives	Oil additives	325,403	15
Oil additives	Oil additives	196,362	45
Oil additives	Oil additives	247,511	65
Oil additives	Oil additives	760,050	65
Oronite Chemical, Oak Point, La.	Oil additives	793,050	40
Oronite Chemical, Oak Point, La.	Oil additives	87,900	15
Oronite Chemical, Oak Point, La.	Oil additives	316,630	50
Oronite Chemical, Oak Point, La.	Oil additives	153,770	30
Oronite Chemical, Oak Point, La.	Phenote, sulfonate detergents	83,800	10
Esso Standard Oil, Baton Rouge, La.	Phenote, sulfonate detergents	1,057,600	35
Morton Wither Chemical, Greensboro, N.C.	Petroleum, chemical products	328,900	30
General Aniline & Film, location not shown	Petroleum, chemical products	207,200	15
DuPont, Deepwater Point, N.J.	Petroleum sulfonates	8,780,000	65
Monsanto Chemical, Nitro, W.Va.	Petroleum sulfonates	1,790,000	50
Linde Air Products, Tonawanda, N.Y.	Petroleum sulfonates	1,236,882	65
Southern Alkali, Corpus Christi, Tex.	Silane, silicones	353,314	45
Shell Oil, Martinez, Calif.	Sodium borate	180,000	15
Ferro Enamel, Cleveland, Ohio	Photo film chemicals	1,509,500	45
Hercules Powder, Henderson, Nev.	Ponson dyes	1,786,000	50
	Rubber cure comp.	485,600	60
	Thermite	106,200	60
	Toxaphene	751,000	60
	Sulfonates	350,000	50
	Sulfonates	414,000	65
	Sulfonates	62,000	40
	Thermite	33,237	60
	Toxaphene	1,967,894	45



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Specific gravity, 20/4 °C	1.2057
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Viscosity, centistokes	
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at 100°F	1.67
at 210°F	0.78

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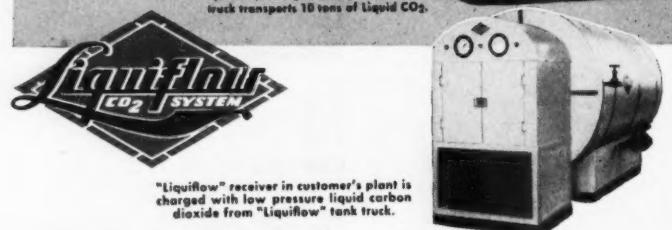


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## Plan for Plenty

As the shortage of technical personnel worsens, plans are being propounded to make smoother and swifter the path through college.

At Hot Springs, Va., last week, this problem was the subject of a panel discussion at the midyear meeting of the Scientific Apparatus Makers Association. One aspect of the shortage was pin-pointed by L. A. Wetlauffer, assistant manager of Du Pont's employee relations department: "In our company, more than 25% of our requirements for new technical personnel in the past two years has been for defense purposes."

Wetlauffer recommended, as part of a long-range program to make technicians more plentiful, that educators look for ways to keep technical students from dropping out or "flunking out" of science and engineering courses. The reported attrition rate of 50%, he opined, "appears to be extremely excessive." He also urged that the Armed Forces allow company personnel representatives to talk to service men at separation centers.

At Philadelphia, President Harold E. Stassen of the University of Pennsylvania announced that his university and Ursinus College (at nearby Collegeville, Pa.), have adopted a joint plan intended to draw more students into science and engineering studies. A student may study liberal arts for three years at Ursinus, then transfer to Penn for two years in either Towne Scientific School or Moore School of Electrical Engineering. At the end of the five years, the student will receive both a B.A. degree from Ursinus and a B.S. in Engineering from Penn.

## LEGAL . . . . .

**Prosecuting Rampage:** Canada has decided to prosecute its rubber companies accused of having formed price-fixing combines (CW, June 14) and also is considering halting 44 paper companies into court on a charge of forming an illegal combine in the fine paper industry. Minister of Justice Stuart Garson has appointed two Toronto lawyers to prepare and prosecute the case against 19 rubber companies and the Rubber Association of Canada.

**Benevolent Monopoly:** Also comprising a combine, but escaping prosecution, are four English pharmaceutical manufacturers organized in a group called "British Insulin Manufacturers." The Monopolies and Restrictive Practices Commission says that these companies supply nearly all the insulin used in the United Kingdom, and that



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**LIQUID**—Iron-free, a clear water-white solution of 45%. Available in tank cars and 675 lb. drums.  
**LIQUID**—Special low chloride, Iron-free grade—45%.  
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## **Penndro makes diagnosis easier**

"Virginia" PENNDRO—adjusted zinc hydrosulphite—figures importantly in the Kligman Method of visualizing microscopic fungi. It is now easy to identify the fungi in a solution dyed red with acid fuchsin.

A solution of  $ZnS_2O_4$  bleaches the background color so that the fungi are clearly seen as a dark red mass. PENNDRO is packaged in individual capsules designed to impart proper strength when added to 100 milliliters of distilled water.

This important diagnostic advance in medical science has been reported in the *Journal of the American Medical Association*. It is typical of the way in which over 40 industries are indebted to "Virginia" products for noteworthy progress.

Perhaps the properties of our major industrial chemicals— $SO_2$ ,  $ZnS_2O_4$ ,  $ZnSO_4$ ,  $Na_2S_2O_4$ ,—can play a prominent part in improving your products or processes. Our Research Department will go all out to help you develop profitable applications, such as bleaching, reducing or neutralizing agents, antichlor, preservative or pH control. Send us your problems today on your business letterhead.

**VIRGINIA SMELTING COMPANY**  
Dept. CW, West Norfolk, Virginia

Field Offices  
NEW YORK  
BOSTON  
PHILADELPHIA  
DETROIT  
CHICAGO  
ATLANTA

**VIRGINIA**  
**ZINC HYDROSULPHITE**  
A LOW-COST REDUCING AGENT IN POWDER FORM

**VIRGINIA**  
**Chemicals**

they have an understanding that no company will change its prices without informing the others. However, the agency says this is "not unreasonable" in view of the companies' collaboration on technical improvements, and adds that the monopoly appears to operate in the public interest, as insulin prices in Britain are lower than in most other countries.

**Violent Violation:** Shipment of 290,000 pounds of copper sulfate to France without proper clearance through the Office of International Trade resulted in a loss of export privileges for six months for Bel Export Co. and Caymex Trading Co., both of New York. The companies agreed to a consent order in which they admitted the charges that they obtained an export license on the copper sulfate through "false representations" and that they failed to label the cargo as licensed by U. S. for shipment to France and not to be diverted to another destination.

### **Alluring Lucre**

Chemical companies this week are being invited to enhance their prestige and good-will by adopting new check design typography so that the companies' checks will have esthetic appeal and "advertising impact."

A brochure containing sample checks of three chemical concerns—Reichhold of Detroit, Genesee Research of Rochester, and Globe Chemical of Cincinnati—is being beamed to chemical firms throughout the nation by the Todd Co., Rochester, N.Y.

That company, which won this year's national offset lithography competition with its check designs, has woven each company's name, address and trade-mark into a pattern along with the usual elements of check make-up. Todd calls these "outstanding checks in the chemical industry."

### **FOREIGN . . . . .**

**Germany-Israel:** Chemical products are included among materials which Germany must ship to Israel as war reparations. A total of DM13 million (\$3.4 million) worth of chemicals is to be shipped by next March 31, with an equal amount due during the next 12 months. Industrial chemicals, agricultural chemicals, dyestuffs and pigments, and pharmaceuticals are listed among reparation materials.

**Rayon/Argentina:** Argentina, which now imports about 40% of its rayon needs, will be self-sufficient when the factory which has been under construction since 1948 begins operation.

# *The Case of the Acid Carboy by Gayner*

*a continued story by  
one of America's  
oldest glass manufacturers*

## CHAPTER NINE

Three outstanding qualities of Gayner Glass carboys have given these "king size" glass containers top preference by the chemical and process industries for almost 60 years.

- **Versatility**—their extensive range of usefulness for carrying all kinds of liquids and many types of powdered, granular, and crystalline products.
- **Impermeability**—their natural property of being impervious to acids and other fluids.
- **Interchangeability**—their ability to carry and store DIFFERENT liquids as the occasion demands—without contamination of contents or container.

Highly resistant to chemical attack, Gayner Glass carboys will not pit, corrode, nor absorb water or chemicals. They are quickly and thoroughly cleansed by ordinary washing methods.

Light in weight, low in shipping costs, convenient to handle, transport and store, Gayner carboys are today the MCA standard 13-gallon glass container used by leading manufacturers throughout the nation.

Gayner offers a complete acid bottle service to industry—from 1 lb. glass bottles to 13-gallon carboys. Your packaging problem will be given our immediate and critical attention.

Illustrated brochure with prices and shipping details on carboys, bottles, boxes and cartons mailed promptly on request.

IMMEDIATE DELIVERY ON ALL TYPES



### TIME-PROVEN CARBOY POINTS

- 1 Gayner glass is fully annealed. Maximum shock-resistance for safety.
- 2 Uniform, heavy walls. Strong, durable, greatest service-ability.
- 3 Easy to clean because it's GLASS. Re-usable for same or different liquids.
- 4 Resistant to chemical attack. No pores or pits to absorb water or chemicals.
- 5 Bottle held firmly by cork wedges. All corners of box securely cushioned.
- 6 Light in weight—low return costs.
- 7 Box is clear, sturdy, seasoned white pine. Bottle easy to install; convenient to handle and store.
- 8 Approved by Bureau of Explosives. MCA Standard 13-gallon carboy bottles.

# GAYNER

SALEM, NEW JERSEY

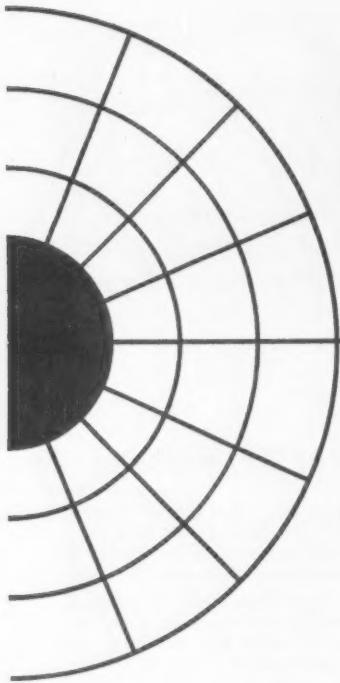
MANUFACTURERS OF FINE GLASS CONTAINERS



# GLASS WORKS

FOUNDED IN 1874

FOR CHEMICALS, DRUGS, OILS, WINES, JUICES . . .



## Bemis Now Offers You Quantacolor

to give your  
printed brand  
“MORE SELL”

You can get the sales benefits of QUANTACOLOR in your branded bags FROM BEMIS ONLY. It adds nothing to your bag cost. This is another extra Bemis service to make your brand sell better and more profitably.

### What is Quantacolor?

Quantacolor is a scientific yardstick for making certain that the colors combined in any design or product are in harmony . . . that they look right together. Nature creates colors in four Quantas . . . and there are all colors of the spectrum in each Quanta. Colors from the same Quanta are pleasing together. Colors from

different Quantas are displeasing together. Very slight changes, sometimes scarcely noticeable, will put a color into the Quanta that agrees with its companion colors.

### Does Quantacolor actually help sell?

It has proved its sales value in many types of packaging and merchandise.

### Does Quantacolor mean you must redesign your brand?

Not at all. Maybe your brand colors are in perfect harmony now. If so, Quantacolor will confirm it. If not, a slight change of a color will probably suffice.

Whether you use Bemis Paper Bags, Cotton Bags, Burlap Bags or Plastic Bags . . . you will benefit from Quantacolor. Ask for details.

# Bemis



- BEMIS BRO. BAG CO.  
408-J Pine St.,  
St. Louis 2, Mo.
- Give me details about Quantacolor  
and how it will help sales.
- Name \_\_\_\_\_
- Company \_\_\_\_\_
- Address \_\_\_\_\_
- City, Zone, State \_\_\_\_\_

The plant at Platanos was built with local capital and money and technical assistance from Italy's SNIA-Viscosa, S.A.

**Alumina Ltd.** is the new name for Aluminum Ltd.'s Jamaica mining unit. Formerly it had the title, Jamaica Bauxite Ltd.

**Sulfuric/Australia:** The Carves-Monsanto design will be used in the \$5 million sulfuric acid plant now being built by Cresco Fertilizers, Ltd., at Port Adelaide, South Australia. The acid-from-pyrites plant, termed the largest single plant in the British Commonwealth, will begin production in late 1954 or early 1955.

**Methanol-Ammonia/Rumania:** Production at the B. H. Berea chemical plant is now reported in full swing. The plant uses natural gas from the Rumanian oil fields to produce methanol and ammonia. Part of the production is to be available for export.

**Penicillin/Poland:** Production of crystalline penicillin has begun in a new plant near Warsaw, using a process developed by Polish and Czech scientists. It is claimed to produce a product which does not lose potency even if stored for longer than three years.

**Rayon/Austria:** The world textile slump was seldom more graphically seen than in Austria where the viscose plant at Lenzig, which until a few months ago was operating at capacity, now is producing at about half rate.

**Silicones/South Africa:** Silicones are now being incorporated into automobile polishes made by a Johannesburg manufacturer, who is exporting them to East Africa, the Belgian Congo, and Egypt.

### KEY CHANGES . . .

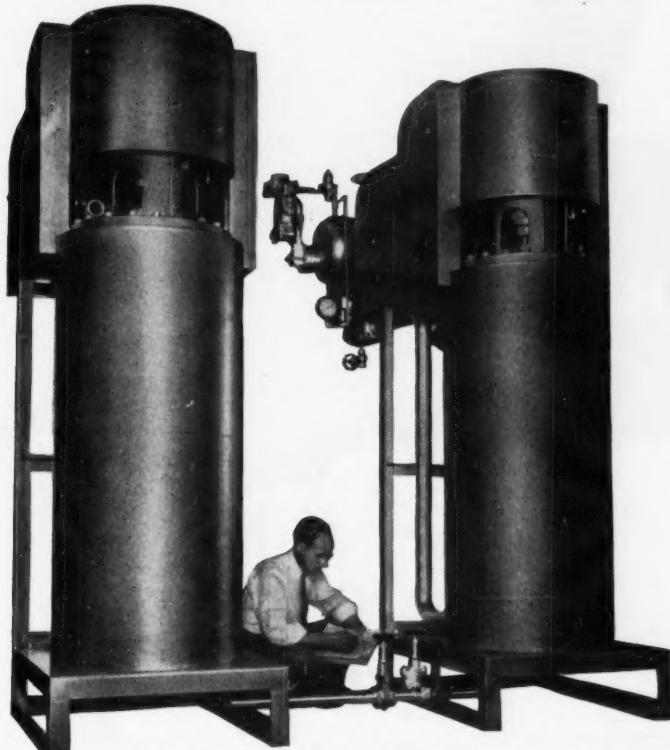
**Malcolm D. Sanders:** To executive vice-president, Innis, Speiden and Co., Inc., New York, N.Y.

**Howard E. Milius:** From Antara Chemicals to sales manager, Humphrey-Wilkinson, Inc., North Haven, Conn.

**Harold C. Whittemore, Jr.:** To vice-president, Warwick Chemical Co., Long Island City, N.Y.

**Carlyle G. Caldwell:** To assistant vice-president, National Starch Products, Inc., New York, N.Y.

# Girdler Process News



**CONTINUOUS MIXING.** Incoming material is pumped through a narrow annular passage, is thoroughly mixed by revolving blades. This compact, closed, heat-transfer system processes continuously at high speed for high daily throughputs.

## Improves efficiency of chemical reactions with VOTATOR® Heat-Transfer Apparatus

OPERATING on a continuous, closed-system basis, VOTATOR Heat-transfer Apparatus gives high rates of heat transfer... is widely used for heating and cooling, crystallizing, controlling heat of reaction, and other processes.

Used as a continuous mixer and chemical reaction vessel, this equipment offers many advantages:

- reactants can be injected at multiple points, and air or other gases can be metered and introduced continuously.
- a mixture of two or more reactants can be maintained, and heat of reaction closely controlled.

- reaction temperatures are achieved quickly, avoiding undesirable side reactions.
- viscous liquids can be handled easily, and the reacted product can be extruded.
- hazardous chemicals can be processed safely.

Absolute and precise control of time and temperature is automatically maintained... resulting in greater uniformity and substantial labor savings. Mixing is thorough and intimate, and reactions can be completed in a matter of seconds. Thus remarkable volume can be attained in a small space.

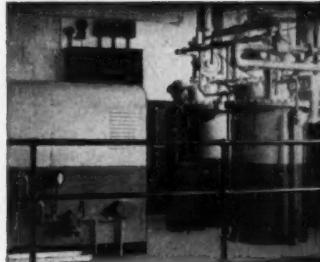
The **GIRDLER** Corporation

LOUISVILLE 1, KENTUCKY  
Votator Division

VOTATOR DIVISION: Processing Apparatus for the Food and Chemical Industries

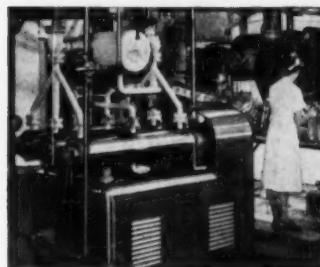
GAS PROCESSES DIVISION: Designers, Engineers, and Constructors for the Petroleum and Chemical Industries

THERMEX DIVISION: Industrial High Frequency Dielectric Heating Apparatus



**Processes Grease in 3 Minutes**

VOTATOR Grease-making Apparatus cooks and cools ingredients for grease for this manufacturer in a 3-minute cycle. Time-consuming, labor-taking batch methods are eliminated. With continuous processing under precise, automatic control, grease uniformity is maintained easily. Moisture content and temperature are controlled accurately.



**Sterilizes and Pasteurizes**

A wide range of food products are sterilized and pasteurized at very high efficiency with VOTATOR Heat-transfer Apparatus. This equipment is particularly effective for materials that are heat sensitive, very viscous, or which undergo a physical change during the process. The entire cycle of heating to temperatures of 280° to 290°F, holding, then cooling the product to a predetermined temperature is accomplished continuously in seconds.

### Want Information?

Girdler's Votator Division designs and builds complete plants for processing edible oil, food, and many other products; and supplies heat-transfer equipment for continuous processing of liquid and viscous materials. Write for Bulletin V-48. The Girdler Corporation, Votator Division, Louisville 1, Kentucky. District Offices: New York, Atlanta, Chicago and San Francisco.



# P·A

## GAS SCRUBBERS

- are stopping air pollution
- and recovering valuable materials all over the country



More than five billion CFD! That's the installed capacity of P-A Venturi and Cyclonic Scrubbers now at work in twenty-six states and 9 foreign countries. These installations . . . all completed within the last four years . . . are proof of the success of Pease-Anthony methods of handling difficult gas scrubbing problems. • Bring your problem to Chemico. Take advantage of our experience in this field. Write to our P-A Sales Department for our specific suggestions. Ask for Bulletin M-102.



### CHEMICAL CONSTRUCTION CORPORATION

A UNIT OF AMERICAN CYANAMID COMPANY

488 MADISON AVENUE, NEW YORK 22, N. Y.

CABLES: CHEMCONST, NEW YORK

TECHNICAL REPRESENTATIVES: CYANAMID PRODUCTS LTD., LONDON • CHEMICAL CONSTRUCTION  
(INTER-AMERICAN) LTD., TORONTO      SOUTH AFRICAN CYANAMID (PTY) LTD., JOHANNESBURG

*Chemico plants are  
profitable investments*

# RESEARCH . . .

## Organized for Altruism

"Invention perpetually repays research—and that research in time advances toward further invention which will pay for still other research, in what may well prove to be a continuous and ever-growing cycle: to harvest only to plant again, often in different fields but always for more research."

That, in essence, is the working credo of Research Corp. Within the past week, Research Corp. "planted" again to the tune of \$120,000 in grants to a score of colleges, universities and scientific institutions.

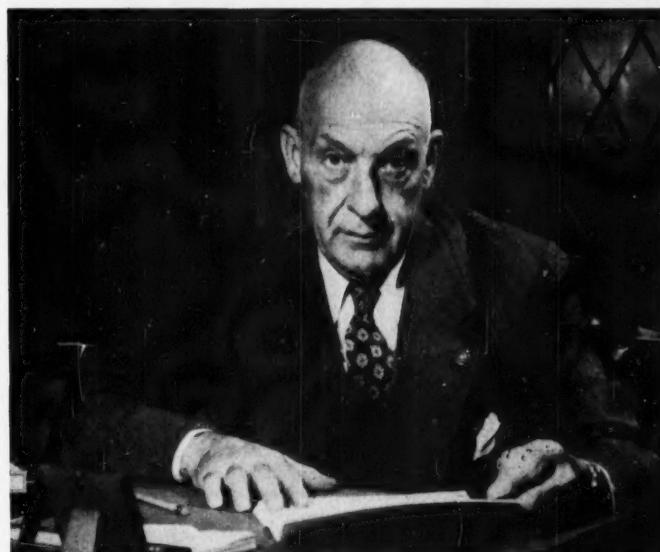
If past form is any indication, the harvest should be bountiful. The \$7 million dispensed in grants over a forty-year period has, at one time or another, nourished the development of a roster of physical scientists that reads like a Who's Who in chemistry and physics. Names like Whitmore, Rabi, Van de Graaff, Kharasch, Urey, Aston, Kendall and others of comparable renown appear on the list. As a group, they account for five Nobel Prizes including this year's award in physics (shared by onetime Research Corp. beneficiaries Felix Bloch of Stanford University and Edward Mills Purcell of Harvard).

What does Research Corp. get from all this? The answer, in terms of ultimate financial gain, is nothing. A non-taxed, non-profit organization, it's devoted, purely and simply, to the furtherance of fundamental research.

Money for this enterprise stems from two principal sources: the corporation's Precipitation Div. which manufactures and installs Cottrell precipitators; and its Patent Management Div. which manages the patent affairs of 46 universities, non-profit foundations, technical societies, etc. (including American National Red Cross, Columbia University, Mayo Clinic and New Hampshire State Planning Commission).

Research Corp. was launched in 1912 by Frederick Gardner Cottrell, noted physical chemist and inventor of the system, which bears his name, of electrical precipitation of particles from gases. The organization's early income was derived exclusively from the licensing of firms to build and install Cottrell precipitators. In later years the corporation set up its own manufacturing branch (Precipitation Div.) at Bound Brook, N.J. Precipitation Div. now employs approximately 300 workers, brings in about \$8 million a year.

**Even Split:** Second to Precipitation Div. as a revenue-producer is the corporation's patent management activities. Through the Patent Management Div., organized in 1937, it evaluates patents submitted for consideration, files and prosecutes applications and follows up the commercial development and licensing of inventions. Although Research Corp. has no rigid



RESEARCH CORP.'S BARKER: A helping hand when it's needed most.

LYN CRAWFORD—MCGRAW-HILL

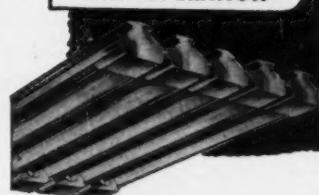
### CHROMALOX

gives you the  
**LOW COST**  
answer to

**FAR INFRARED**

**INFINITELY VARIABLE HEAT**

**SAFE OPERATION**

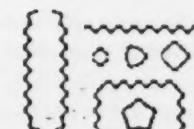


### CHROMALOX

#### ALL-METAL Electric RADIANT HEATERS

The new and improved CHROMALOX heating principle gives ALL infrared heat advantages: high heat intensity, "color blind" infrared radiation, heat that's infinitely variable. You get more satisfactory results at reduced costs in baking, drying, curing, preheating and similar uses with CHROMALOX Radiant Heaters.

#### VERSATILE APPLICATION



Cross-section views of a few of the many open designs possible with Chromalox Radiant Heaters.

Radiant Heater Division 107-23-A

EDWIN L. WIEGAND COMPANY

7578 Thomas Blvd., Pittsburgh 8, Pa.

I am interested in Chromalox Radiant Heat for \_\_\_\_\_

- Send me Bulletin CS-604 on Radiant Heaters.  
 Have your Chromalox representative contact me.  
 Send me Catalog 50 which shows other Chromalox Units.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

### CHROMALOX

ELECTRIC HEAT  
FOR MODERN INDUSTRY

# Have You Investigated

## GLUCURONOLACTONE?

now available in  
commercial quantities!

Glucuronic Acid is an important structural constituent of essentially all fibrous and connective tissues in animals, and is present in low concentrations in normal blood and urine. It is therefore of vital interest to investigators of body processes, diseases and treatments.

Appearance . . .	White, crystalline powder
Odor . . .	None
Melting point, °C . . .	172
Specific rotation, (a) <sub>D</sub> <sup>20</sup> . . .	+20° (in H <sub>2</sub> O)
Specific gravity, 30/4°C . . .	1.76
pH, initial . . .	3.5 (10% aq. soln.)
Particle size . . .	99% finer than 100 mesh

We can supply commercial quantities of Glucuronolactone, produced synthetically from D-glucose, in 5 lb. and 50 lb. containers.



Chemical Division

CORN PRODUCTS REFINING CO.

17 BATTERY PLACE • NEW YORK 4

## RESEARCH . . . . .

rule for determining patent service agreements, it does pay all expenses, usually divides royalties over and above the inventor's share (5% to 15%) on a 50-50 basis with the sponsoring institution. Patents on cortisone, synthetic vitamin A, vitamin B<sub>1</sub>, pantothenic acid, methiolate, and ergonovine are but a few of the more than 600 patents and applications (covering 200 inventions) handled by Research Corp.

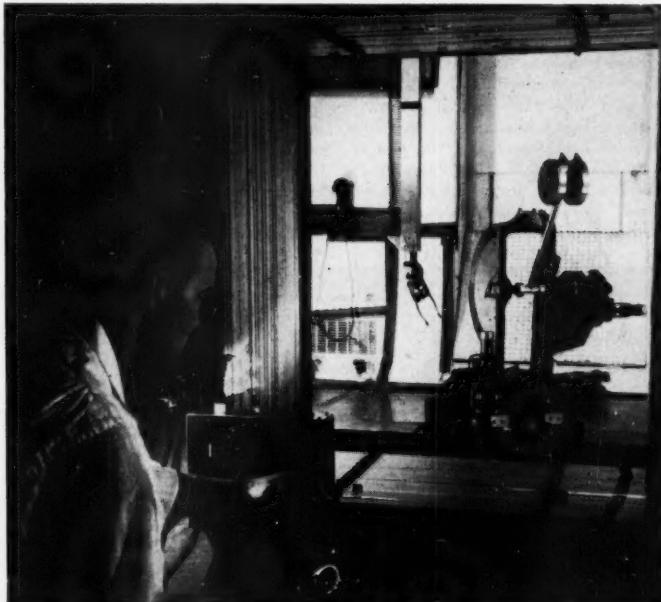
Income from the vitamin B<sub>1</sub> and cortisone patents supports the Williams-Waterman Fund (for the combat of dietary diseases) and a portion of the Kendall-Hench Fund (for endocrinology research).

In its forty years of existence, Research Corp. has parlayed its original endowment—Cottrell's ideal, \$10,000, and a few patents—into a powerful force for the implementation of its program. From his headquarters in a suite of offices on the 38th floor of New York's sky-scraping Chrysler Building, Research Corp. President Joseph W. Barker pilots an organiza-

tion that now gives at the rate of more than \$½ million a year, maintains field offices in Chicago and Los Angeles.

**Spreading it Out:** The large number of scientists and projects which have received Research Corp. support is a paramount clue to the organization's philosophy of giving. Briefly, the idea is this: Give in relatively small amounts, a few hundred or a few thousand dollars at a time, to projects of potentially great theoretical significance; and give when a boost is vitally needed—in the early stages of research when outside aid often means the difference between continuation and abandonment.

The years have proved the wisdom of this approach. Research Corp. grants spurred the early development of the cyclotron, ultracentrifuge, mass spectrograph, linear accelerator and Van de Graaf generator. And steroid chemistry, synthesis of cortisone, free radical chemistry, photosynthetic studies, heat transfer and molecular beam experiments are striking examples of



### Striking While It's Hot

AT THE CONTROLS of materials testing apparatus, Westinghouse technician Michael Sudsina is about to release pendulum-hammer for free-swinging blow at irradiated material in its trajectory. Object: to determine the impact-strength of substances after exposure to nuclear radiation. It's part

of a probe—now under way at A.E.C.'s Westinghouse-operated Bettis Plant (Pittsburgh, Pa.)—of materials for atomic power generators. All physical testing of this type is done by remote control; sheets of plate glass, separated by oil, form the yard-thick, transparent, protective shield.

## 73% VERSUS 50% LIQUID CAUSTIC SODA



**THIS UNIT CAN SAVE YOU  
MANPOWER AND DOLLARS!**

Many volume users of Caustic Soda have realized substantial savings by switching from 50% to 73%. Actually, the expenditure for making this change is small when compared to the excellent returns. Take the case of one of Columbia-Southern's customers.

This company invested \$3,500 for equipment and its installation to handle 73%. In the first year \$35,100 in savings were realized, *a return of 1003% in the first year alone!*

Furthermore, the manhours required to handle the unloading were considerably reduced because fewer cars were needed to supply the same tonnage of Caustic.

The operation used to save both manpower and

dollars is the Columbia-Southern patented process that incorporates unloading and diluting in a single operation. The assembled unit (note illustration) is compact and relatively inexpensive.

Columbia-Southern's technical service staff will be glad to make recommendations regarding the cost and location of an unloading unit as well as assist with the unloading of the initial shipment.

Shipments of 73% are made in Columbia-Southern's specially designed tank cars that have a patented lining which prevents metallic contamination in transit. Also, these cars have the fusion welded tank, improved insulation, and many other features.

Write today for further information on how you can save with 73% caustic!

**COLUMBIA-SOUTHERN  
CHEMICAL CORPORATION**  
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY



**EXECUTIVE OFFICES:** FIFTH AVENUE AT BELLEFIELD, PITTSBURGH 13, PA. **DISTRICT OFFICES:** BOSTON • CHARLOTTE • CHICAGO • CINCINNATI  
CLEVELAND • DALLAS • HOUSTON • MINNEAPOLIS • NEW ORLEANS • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO

# ALL RUBBER DRUM

SAFE AND EASY TO HANDLE!  
NO METAL  
NO BREAKAGE



for

- MURIATIC ACID
- HYDROFLUORIC ACID
- FERRIC CHLORIDE
- CORROSIVE LIQUIDS



ICC-43A SPEC.  
Tare Weight—34 lbs.  
13 gallon capacity



Made with  
Natural, Neoprene,  
Butyl or other Synthetic  
Rubber Linings



Threaded or Stopper type closures



## THE GENERAL TIRE & RUBBER COMPANY

MECHANICAL GOODS DIVISION  
WABASH, INDIANA

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## RESEARCH . . . . .

fields which have received support that was important more for its timing than its dollar value.

Since 1912, many hundreds of projects have been supported; at present, nearly 400 grants are active. Scientific feasibility and individual merit of each proposal are the deciding factors. And there are no strings attached to grants. Discoveries arising from Research Corp. grants are the property of the university or research organization in

which the work was performed. If they so desire, however, these institutions can make a deal with Patent Management on commercially promising developments. But Research Corp. bends over backwards to make one point crystal-clear: Its sole interest is the promulgation of scientific achievement through research; a grant carries no obligation, expressed or implied, for subsequent patent or royalty agreements.

## Push-Button Analysis

Nuclear particles are the new look in analytical reagents. Neutrons are the mainstays of a new micro-analytical device unveiled at Stanford Research Institute; protons make possible an equally new impurity-detecting technique developed by Union Carbide's Oak Ridge National Laboratory researchers.

Both methods bypass chemical agents and chemical procedures, are more sensitive than established chemical and physical analytical methods. But they determine elements only, give no further qualitative information.

Carbide calls its brainchild "neutron-activation analysis," is offering it as a service—by arrangement with Atomic Energy Commission—to industrial, scientific and medical organizations. The technique, according to the company "can be of practical value in determining minute quantities of elements in biological substances; pharmaceuticals; fertilizers and feed-stuffs; fine chemicals; foods and food additives; glass and ceramic materials; insecticides and disinfectants; metals and alloys; plastics and resinous materials;" and a host of other substances.

Here's how it works: The test sample is exposed to neutron bombardment in the Oak Ridge graphite reactor. Impurities are thus made artificially radioactive, can be detected and measured with great accuracy by instruments specially designed for the job.

Specificity is, perhaps, neutron activation's chief attribute. Irradiation produces artificial isotopes which emit characteristic radiation, have distinct patterns of radioactive decay. The characteristics of one radioactive isotope are never duplicated by another.

Other advantages of the method: It practically eliminates the possibility of contamination, except when the sample material contains a large quantity of elements which are strong neutron absorbers; traces of elements too minute for detection by other methods can be determined; it permits exami-

nation of larger samples than ordinarily used in conventional methods.

Credit for the new analytical advance belongs to Activation Analysis Group of the National Laboratory's analytical chemistry division. Commercialization is under the aegis of Radioisotope Control Department of the Laboratory's Operations Division), will be handled in a manner similar to the radioactive isotope distribution plan.

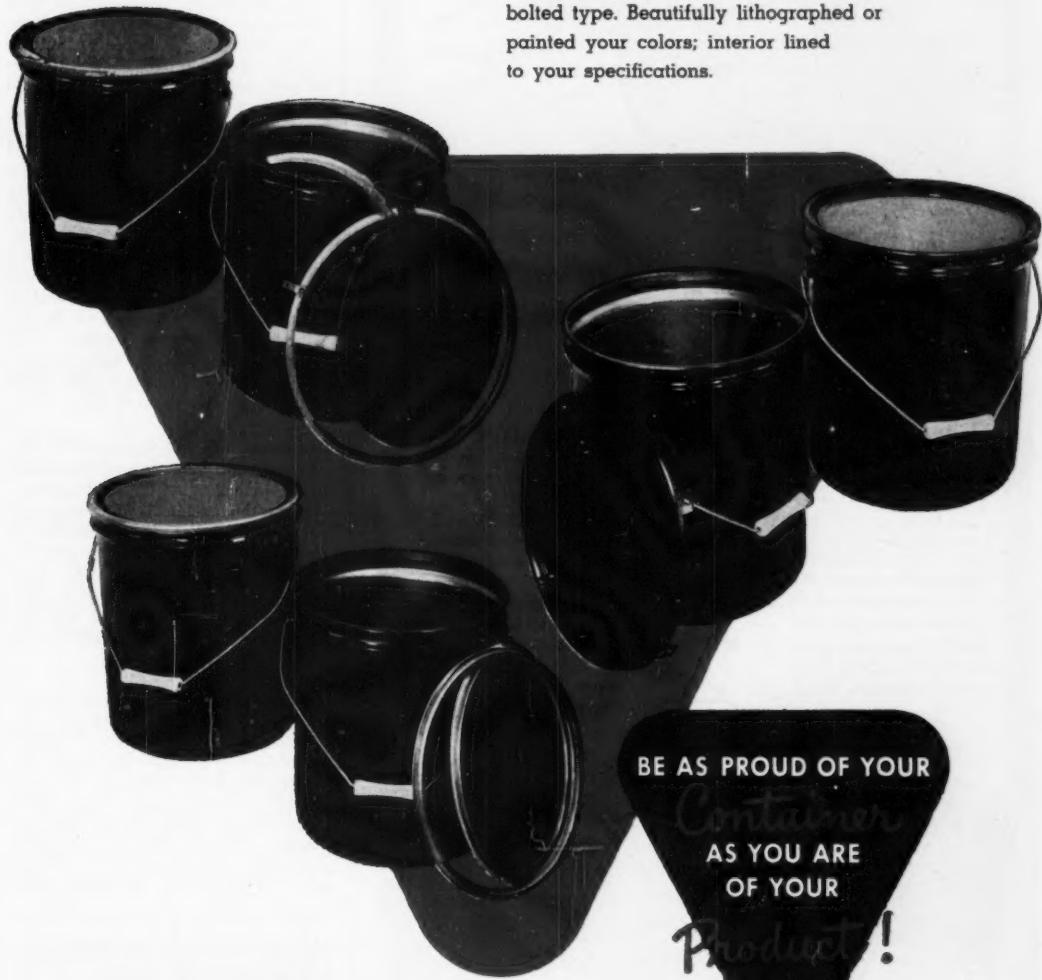
**Proton Bounce:** Much of what Carbide does with neutrons, Stanford accomplishes with protons. The Stanford technique hinges on a \$200,000 instrument tagged "Proton Bombarde," which bounces a stream of protons off the surface of a sample substance. Protons reaching the nuclei of surface atoms bounce off with a characteristic velocity; the heavier the atom, the greater the proton-rebound velocity. Rebounding protons are deflected by a magnetic spectrometer, pass through a counting device which gives the proportional elemental composition of the sample. The result finally appears in the form of a recorded curve giving all elements found and their relative proportions.

A non-destructive technique, proton bombardment can detect as little as a trillionth of a gram of an element. Its first job will be in the testing of alloys for Army Ordnance Department. Stanford visualizes industrial applications in studies of lubricants, coatings and finishes, and in the analysis of surface contaminants and minute unknown substances.

**One-Up on ACTH:** A new drug, called "a new version" of ACTH, but cheaper and more active than the latter is now being produced for clinical evaluation by Nordic Biochemicals, Montreal. The substance has been tagged Acton X. It is reported to be relatively free of most of the untoward side-effects associated with ACTH. Just how the new drug differs from ACTH is not completely clear. Ap-

# OHIO Steel PAILS

- Your choice of cover style—Lug, Ring Seal, or Re-Seal, either the lever or bolted type. Beautifully lithographed or painted your colors; interior lined to your specifications.



BE AS PROUD OF YOUR  
*Container*  
AS YOU ARE  
OF YOUR  
*Product!*

the



Corrugating Company

WARREN, OHIO

Offices in Principal Cities



## RESEARCH . . . . .



### CONSIDERING FIRE PROTECTION?

THE COMPLETE STORY . . .  
... YOURS FOR THE ASKING!

You've undoubtedly pondered from time to time on the value of fire protection. You've heard that certain types of fire safety can save you money . . . that sprinkler systems pay for themselves. Yes—you've probably heard a lot about fire protection but because of the technical complexity involving economic considerations, security factors and application, you've wondered what most of it is about.

That's why we published "The ABC of Fire Protection." It's a comprehensive book that contains all the facts and—they're presented in a manner understandable by the layman—sufficiently defined for an exacting technician. Insurance interests have readily recognized the value of this literature. You will too! Use the coupon to get your free copy or phone your nearest "Automatic" Sprinkler representative today.

"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA	
P. O. BOX 380	
YOUNGSTOWN 2, OHIO	
Please send me your Bulletin No. "The ABC of Fire Protection"	
Name _____	
Title _____	
Company _____	
City _____ Zone _____ State _____	

#### "AUTOMATIC" SPRINKLER CORPORATION OF AMERICA

YOUNGSTOWN, OHIO

OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

*"Automatic" Sprinkler*  
FIRST IN FIRE PROTECTION

parently, it's a highly purified form of the pituitary hormone. Evidence: Nordic Biochemicals opines it is "the only pharmaceutical firm in North America which has removed most of the impurities from ACTH." For the present, at any rate, Acton X is not available outside of Canada.

**Isotope Confab:** An intense interest in radioactive isotopes, on the part of Continental scientists, was clearly evident at a recent symposium in West Germany. More than 160 scientists, representing five European countries, flocked to Frankfurt last week to hear of new research methods in the field of radioactive isotopes.

**Individualized Service:** Researchers of Ethyl Corp. (New York, N.Y.) report a new laboratory method for the study of factors (volatility of fuels, carbon-hydrogen ratio, etc.) causing combustion chamber deposits. It's based on a specially designed, single-cylinder test engine which permits an appraisal of the effect of any one factor in the complex combustion system. The method, according to Ethyl Corp., gives results which agree with those obtained in vehicle road tests.

**Milestone:** API 44, American Petroleum Institute's research project devoted to the identification and characterization of the chemical constituents of petroleum, has reached a milestone in its development. Now ten years old, the study—currently headed by Carnegie Tech's Frederick Rossini—has resulted in the charting of 100,000 physical and chemical properties for 1,000 compounds.

**TB Aid:** A fleeting glimpse of chemotherapeutic research behind the Iron Curtain is gained from a new report of Polish anti-TB experiments. Workers at Medical Academy (Cracow) claim promising results in clinical tests of hydroxamic acid derivatives. As adjuncts to streptomycin, the hydroxamic acids produced beneficial effects in a limited group of tuberculosis cases.

**Branching Out:** In a major reorganization of its foreign research set-up, Arthur D. Little, Inc. (Cambridge, Mass.) has just established an International Division. The new branch will coordinate the company's activities abroad, which now include: technical counseling to the governments of Puerto Rico and Jamaica; technical and economic surveys in Egypt, Haiti and Newfoundland; plant location studies in Mexico; and miscellaneous



**Put Your  
Power Costs  
and Performance  
in Order**



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# Power Keys

Here are the keys that have opened the way to adequate, reliable power for many plants — small and large. They have eliminated the penalty paid due to poor power factor, surge loads and adverse current characteristics.

**But, Will They Fit Your Problem?**

Look at the list! Would compact in-plant power generation unlock your plans for plant expansion . . . eliminate the need of using purchased power at

rates based on *high* peak demand values . . . add to current capacity? The answer is yes—and it can mean the difference between profit and loss in your plant.

If you are seeking the keys to your power problem, write us today, outlining your needs. Fairbanks-Morse engineering can give you a *proved* answer . . . based on over 50 years' experience in industrial and municipal power generation. Fairbanks, Morse & Co., Chicago 5, Ill.

**1 Handle Peak Demand . . .** reduce peak demand values for lower purchased power rates.

**2 Power Factor . . .** in-plant power generator can eliminate power factor penalties.

**3 Emergency Power . . .** insurance against lost production and damage resulting from line failures.

**4 Handle Surge Loads . . .** that may now be affecting current characteristics of entire plant.

**5 Plant Expansion . . .** need not be restricted due to lack—or expense—of ample power.

**6 Useful Heat . . .** lube oil, water and exhaust heat can be turned from waste to profit.

**7 Chemical Value . . .** exhaust gases are high in free nitrogen—available for economical fixation of nitrates, ammonia, etc.

**8 Insurance Advantage . . .** of diesel over gasoline engine, for example, will soon pay for installation.

**9 No Weather Worries . . .** ice, snow, sleet, wind storms can't stop plant operations.

**10 Handle Increasing Load . . .** in-plant power economically adds to current capacity as loads increase.

**11 Fuel Economy . . .** use diesel oil, natural gas or sewage gas for added economy.

**12 Remote Locations . . .** distance from transmission lines needn't curtail plant expansion.

**13 More Compact Power . . .** Fairbanks-Morse engines give you more power per foot of floor space, more power on present foundation.

**14 Minimum Attendance . . .** Fairbanks-Morse in-plant generating sets require far less supervision or maintenance.

**15 Save Cost . . .** of running in new line where present transformers and power lines are already loaded.



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*a name worth remembering when you want the best*

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • ELECTRICAL MACHINERY • PUMPS • SCALES • RAIL CARS • MAGNETOS • FARM MACHINERY



Few other industries require the painstaking supervision, accuracy, or sanitation that is necessary in the production of drugs used to perform "everyday miracles." Yet in spite of this, each of the companies whose trade mark is shown above, day after day, year after year, produces pharmaceuticals that never meet anything less than the highest standards of purity.

Of course, the plants operated by these companies are models of precision, planned to achieve the greatest possible efficiency with the finest equipment available. That's why, in each of these plants, you will find Sparkler filters handling difficult liquid filtration jobs.

It is important to remember that Sparkler filters were designed with the same goals in mind — accuracy and sanitation — that are accepted as a fundamental part of the drug industry. They utilize the patented Sparkler horizontal plate principle to provide firm support for the filter media and filter aid. This horizontal surface permits the formation of a stronger, completely uniform cake that will not slip or crack even under intermittent operation. Thus, filtration quality through the entire cake is constant, and can easily be regulated by varying the cake density.

Plates are assembled one above the other and are fastened together in car-

tridge form, making it extremely simple to remove them from the filter for cleaning. Other Sparkler features include compact, neat design, high flow rates and low operating cost.

For full information, write to Mr. Eric Anderson. New catalog is available on request.



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Mundelein, Ill., U.S.A.

## RESEARCH . . . . .

work in Canada, Japan and India.

A. G. Haldane, former deputy assistant director of U.S. Commerce Dept.'s Office of International Trade, will head the new division.

**Latest Word:** The Du Pont Co. will begin preparing the Wilmington (Del.) site for its new \$5-million textile research laboratory (CW, Sept. 27) sometime next month. The new facilities will consolidate Du Pont's textile research activities which are now carried on at four separate locations in the Wilmington area. Actual construction, however, must await the go-ahead from NPA.

**Substitution:** Common salt can be substituted for Glauber's salt (sodium sulfate) in the acid-dyeing of wool. That's the conclusion arrived at on the strength of research sponsored by American Assoc. of Textile Chemists and Colorists at Lehigh University.

**Discovery:** Alpha-chloroacetamide could add plastics manufacture to its list of industrial outlets. According to Chemical Development Corp. (Danvers, Mass.) the compound has proved effective as an acid-type catalyst for urea-formaldehyde, melamine-formaldehyde and related resins. The material now has applications in the photographic industry and in the synthesis of intermediates for pharmaceuticals, dyes and surface active agents.

**Wholesale Award:** History was made by U.S. Patent Office this month with the issuing of 85 patents in one fell swoop to researchers of Philips Laboratories, Inc. (Irvington, N.Y.) and its European counterpart, N. V. Philips Gloeilampenfabrieken of Holland. The patents—in electronics, mechanical engineering, and chemistry—constitute the largest block ever issued at one time in the U.S. to a single assignee.

**Emphasis on Appearance:** A new consulting group devoted to appearance and related optical properties of materials is making its debut. It's Hunter Associates Laboratory (Falls Church, Va.), reported to be the first of its kind. Slated for operation by the first of next year, the new organization will specialize in advice on appearance instrumentation, tests for appearance properties (e.g. color, reflectance, turbidity, opacity, etc.), designs of appearance-testing instruments and development of procedures for testing, inspecting and—in some cases—automatically controlling the appearance properties of manufactured materials.

## Hooker Chemical Guide (ONE OF A SERIES)

USE this handy reference to save time  
in selecting high quality chemicals.

# HOOKER SODIUM BENZOATE BENZOIC ACID

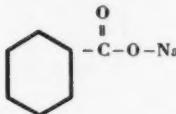
A GRADE TO FIT YOUR NEEDS, USP OR TECHNICAL

## SODIUM BENZOATE USP and Technical

Synonym: Benzoate of Soda

Formula:  $C_6H_5COONa$

Appearance: White, odorless, crystalline solid, sold in flake or powdered form.



### TYPICAL PROPERTIES

#### USP GRADE

Molecular Weight .....	144.1
Sodium Benzoate .....	99+ %
Benzoic Acid .....	0.2% max.
Water .....	0.5% max.

Description: Meets all chemical and physical requirements of U.S. Pharmacopoeia XIV.

#### TECHNICAL GRADE

Molecular Weight .....	144.1
Sodium Benzoate .....	98% min.
Benzoic Acid .....	0.4% max.

Description: Does not quite meet the requirements of U.S. Pharmacopoeia XIV.

### USES

Food Preservative: foods, fruit juices, syrups, margarine.

Antiseptic: pharmaceutical and cosmetic preparations, tooth paste.

#### Tobacco Curing

Corrosion Inhibitor: for glycol anti-freeze solutions, solvent type metal cleaners, etc.

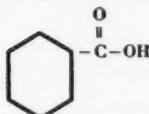
Chemical Intermediate: dyestuffs and pharmaceuticals.

## BENZOIC ACID USP and Technical

Synonyms: Benzenecarboxylic Acid  
Phenylformic Acid

Formula:  $C_6H_5COOH$

Appearance: White, crystalline solid, USP grade is available in powder form. Technical grade is available either in powder form or in the form of very small bead-like particles.



### TYPICAL PROPERTIES

#### USP GRADE

Molecular Weight .....	122.1
Benzoic Acid .....	99.3% min.
Water Content .....	0.2% max.
Description: Meets all chemical and physical requirements of U.S. Pharmacopoeia XIV.	

#### TECHNICAL GRADE

Molecular Weight .....	122.1
Benzoic Acid .....	98.0% min.
Water Content .....	0.2% max.

Description: Does not quite meet the chemical and physical requirements of U.S. Pharmacopoeia XIV.

### USES

Chemical Intermediate: dyestuffs, perfumes, pharmaceuticals, benzoates, flattening agents for paint.

Preservative: for textile sizing, foods, cosmetic creams, lotions.

Antiseptic: for dentifrices and pharmaceuticals.

#### Tobacco Curing

Dyeing Assistant: for polyglycol terephthalate fibers (Dacron). Benzoic acid has a swelling effect on some of the new synthetic fibers. This gives better dye penetration with resulting level, long lasting color.

For detailed information on items listed, drop us a note on your letterhead. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 3 Forty-Seventh Street, Niagara Falls, N. Y.

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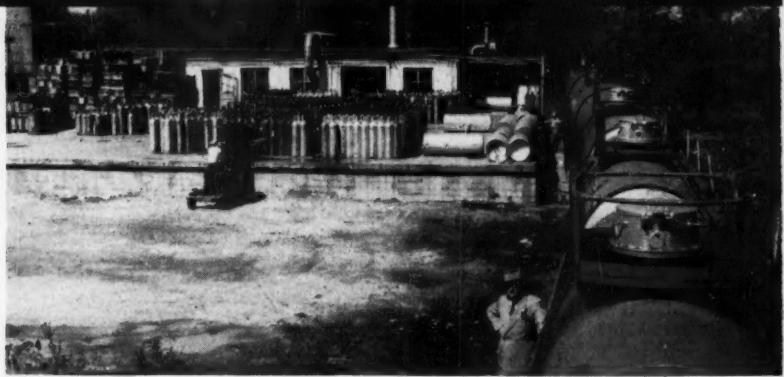
*From the Salt of the Earth*



2-326

# DISTRIBUTION . . .

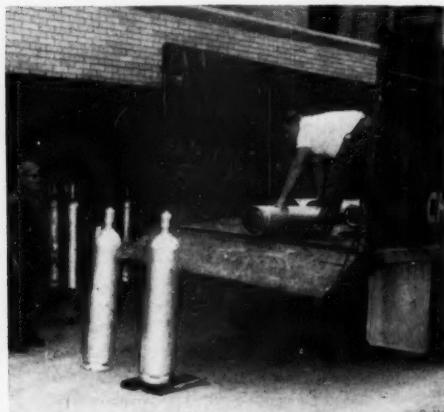
## Buy in Tank Cars, Sell in Cylinders



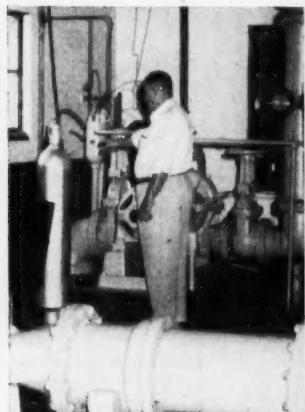
1 THE JOHN WILEY JONES CO. PLANT at Indianapolis, Ind., unloads tank cars and fills its cylinders or ton-tanks in a one-step operation. It services local cylinder market.



8 INSPECTION of cylinders is a necessary safety measure.



4 DISTRIBUTOR'S TRUCK stops at nearby Frankfort Water Co., typical municipal chlorine customer.



5 EQUALIZING temperature of cylinder and pumproom is a ...

## Chlorine Distributor Expands Market

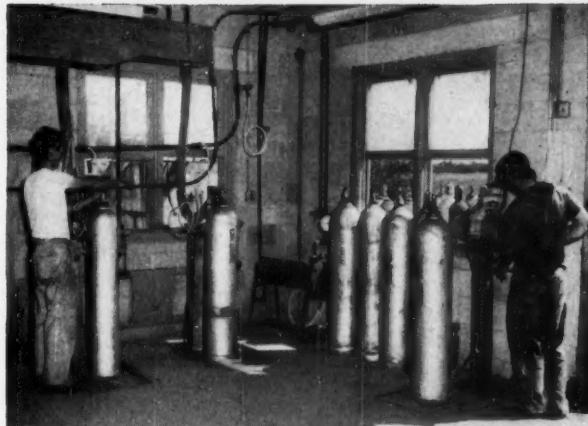
Buy a tank car of chlorine, assemble a stack of cylinders, pour the liquefied gas from one into the other, and theoretically you are all set to go into the business of marketing cylinder-chlorine. But unfortunately it isn't quite so simple. There's evidence for that in the relatively small number of non-producer concerns which have successfully ventured into this part of the chemical-distribution picture—in spite of the active withdrawal by some of the major chlorine producers from the less-than-tank-car market.

But one of these successful few, and one of the pioneers in the field, is this week putting the final touches on its fifth plant. John Wiley Jones Co. is

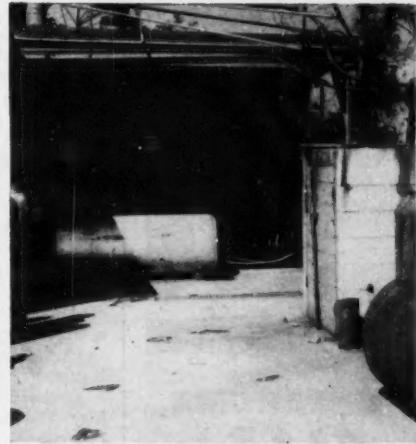
adding Charlotte, N.C., to its cross-country chlorine coverage.\*

As a buyer, and distributor, of a good many tank cars of chlorine a month, bustling John Wiley Jones, president, is justly proud of his new expansion. But he makes no attempt at minimizing the difficulties which beset entrepreneurs entering into the chlorine-cylinder business. He is especially vocal on the point because, as he says, "this is the most misunderstood part of the entire chemical industry. No other kind of enterprise looks quite so attractive at first glance—nor quite

\* Other plants: Jacksonville, Fla.; Torrance, Calif.; Indianapolis, Ind., and Caledonia, N.Y. The pictures on these pages were taken at the Indianapolis location.



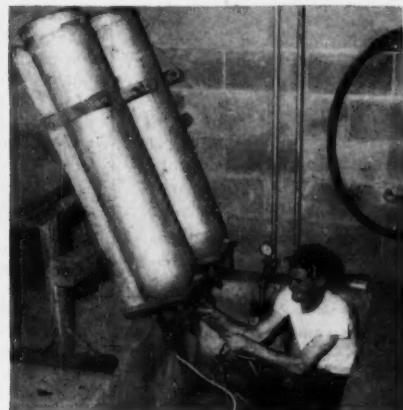
**2** FILLING THE CYLINDERS is a cautious operation. "Blow-off" chlorine gas is used to make "Sunny Sol" sodium hypochlorite bleach.



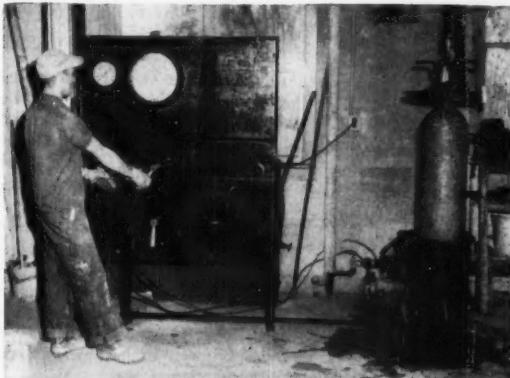
**3** THE TON-TANKS present similar problems, except that even more gas must be vented.



**6** SERVICE TIP (it prevents internal condensation) supplied by salesman. Here Supt. Adkins explains chlorinating unit to Frankfort's mayor.



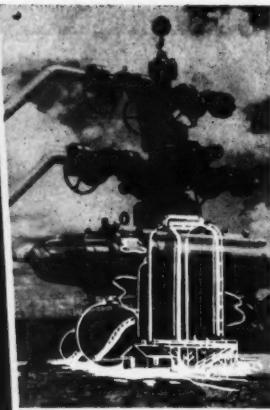
**7** BACK AT PLANT, emptying cylinders before refilling means more Cl<sub>2</sub> for bleach production.



**9** GOVERNMENT REGULATIONS must be met in checking the cylinder inventory. This is 800# water-pressure test.



**10** MULTIPLICITY of customers and containers means expensive record keeping.



## OKLAHOMA FUEL

The availability of dependable and economical industrial fuels increases Oklahoma's stature in providing an abundant supply at a great savings. Ranking third in the U. S. in the production of liquefied petroleum gases; fourth in petroleum, natural gas and natural gasoline; and fourteenth in coal; Oklahoma's cost of industrial fuels is considerably less than found in cities far removed from their sources. Chemical by-products of those fuels, such as plastics, synthetic rubber, nylon and detergents to name a few, are derived from the rapidly expanding petroleum-chemical industry.

### Mineral Resources—

Oklahoma is the new frontier in the nation, ranking sixth in the value of mineral production... proven reserves of lead, zinc, glass sand, volcanic ash, limestone and gypsum are available in unlimited quantities to industry.

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IN OKLAHOMA

## DISTRIBUTION . . . . .

so dismal after taking a second look."

**Capital and Caution:** Jones backs up this statement by pointing his finger at the following facts of chlorine-cylinder life:

- Filling cylinders and ton-tanks is a hazardous operation, calling for skilled personnel and elaborate safety measures.

- The distributor has to carry the full capital weight of his cylinder supply. A custom of the trade dictates, in many cases, a policy of not demanding a deposit for the chlorine container. At \$30 a cylinder, and with a large inventory tied up in the consuming plants, this becomes a back-breaking burden.

- Clerical and service expenses are high—and irreducible. The average customer is small, yet he expects a maximum of assistance in the handling of what, to him, is a dangerous and foreign material. Moreover, the distributor, with a large proportion of his capital tied up in cylinders, is forced to keep track of them by maintaining voluminous clerical records.

- Unlike the chlorine producer, the distributor-filler of chlorine cylinders must dispose of large quantities of "blow-off" chlorine. John Wiley Jones solves this problem by making sodium hypochlorite ("Sunny Sol" brand), but disposing of the hypochlorite acts as an effective damper on the expansion of the cylinder-filling side of the business. They must both grow together.

**Bleach Beginnings:** One reason that Jones has been able to overcome these major stumbling blocks lies in the early history of his company. He got his start in the troublesome bleach end of the chlorine-bleach tandem—which is much easier than trying to develop a bleach market after entering the business on the basis of chlorine outlets.

Moreover, his first plant, at Caledonia, N.Y., was largely an outgrowth of the dynamite enterprise which his father had sold to Atlas Powder a few years before Jones started operations in 1930. This gave him a background of experience in the handling of dangerous materials.

With sodium hypochlorite as his first product, Jones soon found himself supplying those municipalities that were hypochlorinating their water supplies. As these towns grew, and converted over to chlorinating mechanisms, Jones added cylinder chlorine to his product line. Soon the tail was wagging the dog and the company's "Sunny Sol" sales were a secondary—but essential—part of the operations.

Westvaco this year sold its small-container business—lock, stock, and cyl-

inder—to the Jones company. It seems that sometimes it's just not practical for a large producer to handle the grass-roots selling and servicing called for in the cylinder-chlorine trade.

Jones' new plant, however, proves that there is room for an aggressive selling job by an independent distributor—provided that he recognizes the problems and forthrightly solves them.

## Do's and Don'ts

The two committees\* whose research resulted in the lifting of calcium ammonium nitrate fertilizer shipping restrictions (*CW, Market Letter*, Nov. 15) had several safety recommendations to make.

Referring specifically to "calcium ammonium nitrate fertilizer, a homogeneous mixture of approximately 60% ammonium nitrate and 40% limestone and/or dolomite—20% nitrogen content," the report recommended, and the Coast Guard adopted, these do's-and-don'ts:

- If the material is shipped in bulk and becomes caked in the hold of a ship, it is not safe to break up the caked material by blasting with explosives."

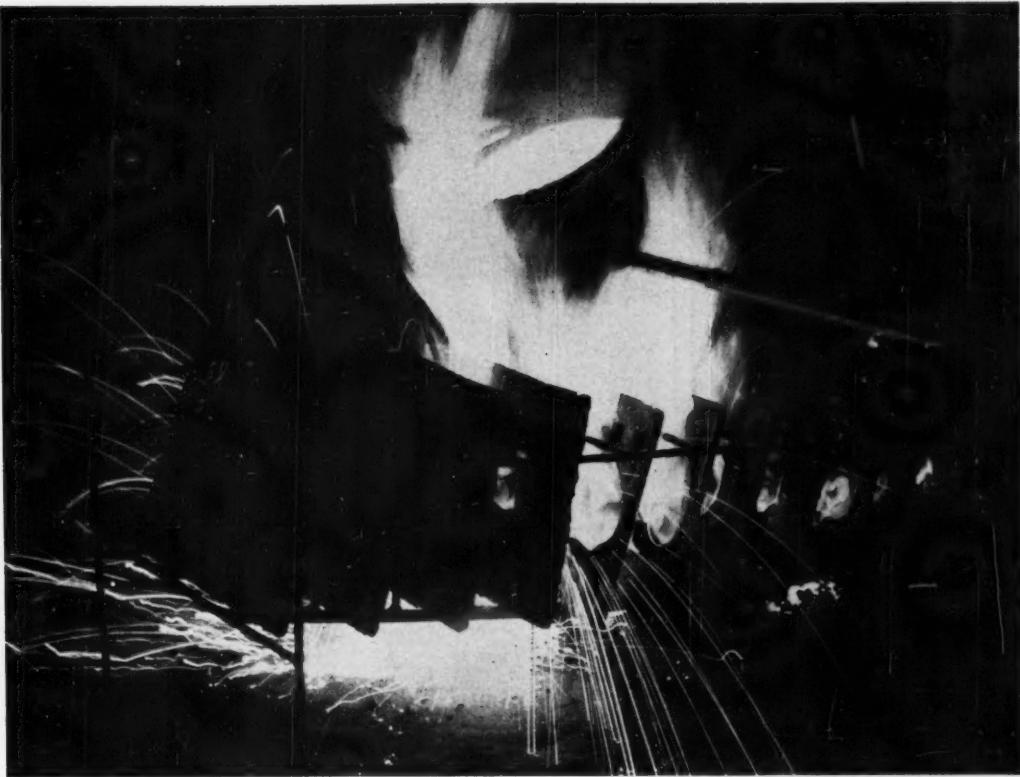
- When fighting a fire in which these materials are involved, the fire should be flooded with a large amount of water, since it is not possible to extinguish such fires with steam or other smothering agents. The presence of the nitrate provides sufficient oxygen to support a fire even though air is excluded."

- As in the case of all stowage of oxidizing materials, including all nitrates of this character, the amount of combustible dunnage used should be kept at a minimum in order to reduce the extent and intensity of a fire, should one start in the hold where this material is stored."

- Additive Agent: The Tiona Petroleum Co. (Philadelphia, Pa.) has been named as the exclusive export sales representative for petroleum additives manufactured by the Carlisle Chemical Works of Reading, Ohio.

**Sacks with Sound:** A documentary 16 mm sound film has been produced by New York's Hudson Pulp and Paper Corp. as an instructive medium for users of industrial bags. Entitled "From Pines to Multiwall Sacks," the movie purposely underplays any company-promotion aspects.

\* One, an "interagency committee," was formed by the Secretary of the Treasury in 1947 shortly after the Texas City disaster. The other was a special committee from the National Academy of Sciences. The latter did the basic research on the problem.



Photograph by courtesy of The Cooper Alloy Foundry Co.

Here's a close-up view of one of the most closely-guarded industrial secrets in years: Shell Molding. This picture shows the pouring operation at The Cooper Alloy Foundry Co., Hillside, N. J.

## Can HCHO Remold The Foundry?

The most exciting foundry technology news in many years has been the recent announcement of a revolutionary new process called "Shell Molding." Like so many ideas that have proved revolutionary, "Shell Molding" is, basically, a simple idea.

The key to this new process is a thin mold of sand called a "shell mold." Molten metal is poured into this mold as shown in the picture above. The binder used to hold this sand together is phenolic resin. By adding just five percent phenolic resin to sand, this revolutionary new process became a reality.

As a supplier of HCHO used to prepare phenolic resins, Spencer Chemical Company has been intensely interested in this new foundry development. Formaldehyde . . . phenolic resins . . . shell molding. It's one more example of the limitless frontiers of chemistry; an inventive triumph so revolutionary that it may not only remold the foundry, but may actually remold an industrial way of life.

SPENCER PRODUCTS: Anhydrous Ammonia • Refrigeration Grade Ammonia • Aqua Ammonia • Methanol Formaldehyde • "Mr. N" Ammonium Nitrate Fertilizer SPENSOL (Spencer Nitrogen Solutions) • 83% Ammonium Nitrate Solution • FREZALL (Spencer Dry Ice) Liquid Carbon Dioxide.



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1 JAMES E. SEYMOUR, research chemist for Illinois Farm Supply Co., in his lab where he devised his fertilizer-making techniques using surface-active agents.

## Nitrates

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DAVIES NITRATE CO. INC.  
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## Quick Cure for Fertilizers

Of prime interest to fertilizer manufacturers, but almost as vital to makers of surface-active agents is the news that the Illinois Farm Supply Co. (East St. Louis, Ill.) is using Santomerse 1 in its fertilizer manufacture (CW Newsletter, Nov. 8).

For the plant food producers, faced with the pleasant prospect of a continued zooming demand, but impeded by a slow process and seasonal sales, the new technique offers a way to speed up and level out production; for use of a proper surface-active agent can often cut the curing phase of fertilizer manufacture from one month to three days.

For the chemical makers, this same vaulting need for fertilizers (pre-war yearly usage was about 7.8 million tons; it had shot to 18 million by 1950, should reach 19 million tons this year) could mean a market for close to 20 million pounds of surface-active agents at the one-pound-per-ton requirements now found effective.

And for the farmer, it means a free-flowing fertilizer that will not lump

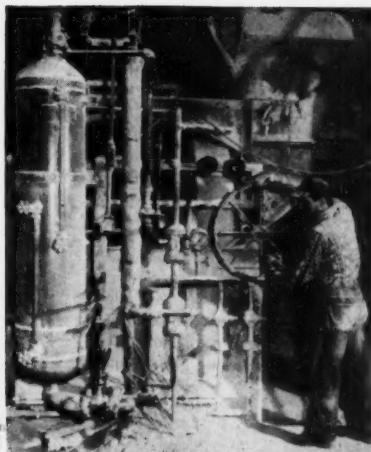
when stored, and will always run smoothly through his planting and fertilizing machinery.

**Slow Steps:** A look at the steps in superphosphate fertilizer manufacture shows how much of a boon the surface-active agents can be:

Primary ingredient of a "super" fertilizer is the super, made by reacting phosphate rock with sulfuric acid, and letting it age. This super is then mixed with potash, and ammonia, usually in a water solution (or anhydrous ammonia, ammonium sulfate, or a mixture of two or all three). A ponderous cement-mixer type machine blends the super and the ammonium ion source—so that the free acid in the super is eventually ammoniated.

The major part of this ammoniation reaction takes place when the mix is transferred to a bin, to "cure in a pile," ordinarily a two-week to four-month process, after which the fertilizer is ready for shipment.

But the pile curing is a slow process, results in a concrete-like mass that must be broken up for use. Further-



**2** BATCH BLENDER: Phosphate, potash, ammoniating solution plus surfactant.



**3** FREE-FLOWING even in the curing bin, fertilizer is easy to handle.



**4** DIFFERENCE in bagged fertilizers made with a surface-active agent (right, four-day cure) and without (left, 30-day cure) is apparent in this photograph.

and this is an important consideration, since most plants must almost shut down while the curing bin is filled, and bagged material hasn't moved out—it takes up a vast amount of space.

**Super Active:** That's where the surface-active agents come in. By adding them at the mixing phase, in 0.05% concentrations, more complete and uniform wetting is achieved—less water is required, and the ammoniation reaction is faster, more complete. This means less space tied up waiting for the curing. And by cutting curing time to a tenth of what it was before, the production cycle is leveled out.

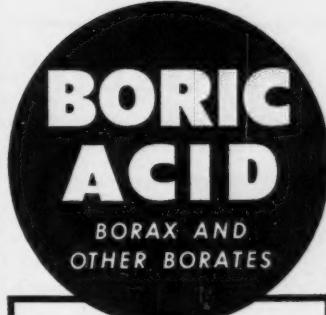
There's another advantage. Sometimes the curing is not complete. When dug (or blasted) out for bagging, variably ammoniated ingredients in contact with each other react. The result: a sort of further curing, in which the contents form a rocky mass again. These packaged tombstones are hard for the dealer to sell, and impossible for the farmer to use in his drill

(planting and fertilizing device) without time-consuming pulverizing.

IFSC materials have shown a remarkable resistance to this caking, even when oven-dried, or when stored in locker plants at temperatures from 20 to -30F.

**Lab Approach:** Major credit for the development of the new technique goes to James E. Seymour, of IFSC, a co-op affiliated with the Illinois Agricultural Association. Seymour researched the possibilities of surface-active agents in fertilizer-making in the late summer of 1951, and since October of that year, all IFSC soil builders (tradename Gro-Flo) have included Santomerse I.

Seymour reported his test results—more than 25 surface-active agents were tried—and manufacturing success to the American Research Assn. meeting at Osage Beach, Mo., last month. It apparently took many other fertilizer makers (and surface-active agent producers) by surprise, although West



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tent and non-toxic, Ottasept is easy to formulate. It's non-staining, colorless, 100% active ingredient. Requires no license or new drug application when used externally.

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#### PELAMAY Products

112 4th Ave., N.Y. 3, N.Y. GR 7-8468

## SPECIALTIES . . . . .

Coast mixers reportedly have been quietly using Oronite detergent, about 1 part-per-thousand, for four or five years. In recent weeks, though, surface-active agent salesmen have been rapping on the doors of superphosphate makers.

For the whole process is available to the industry. At a cost boost of about 15¢ per ton, a "non-setting up" product can be turned out at a fraction of the trouble experienced before.

There have been other methods of speeding up fertilizer manufacture. One such procedure, to shorten the aging time of the rock phosphorus-sulfuric acid mixture, is termed gran-

ulation of the superphosphate. In the Davison variation of this (Oberphos process is also used), the crude superphosphate goes through a step where it is subjected to water sprays to form granules, which are then heat dried. Aging is cut from 8-10 weeks to about ten days.

Curiously, the co-ops appear to have stolen a march on the rest of the fertilizer world. Several in the Midwest this fall are advertising surfactant-containing material. But with the help of the surface-active agent makers, it looks as if it won't be long before the rest of the trade is actively employing these materials too.



RUG REJUVENATOR: Aerosols for on-the-spot color changes.

## Bonanza in Canned Color

Hitching to a bandwagon is pretty standard practice. But it isn't really profitable unless you know where the wagon's heading. Aerosol Products Corp. (Chicago), formed early this year to capitalize on the demand for aerosols, has recently edged toward the driver's seat. Its move: Pronto Dye-Foam (CW, Sept. 20).

Aerosol's rug and carpet rejuvenator was about the first of the handy dyes to hit the market, though Henderize, Inc.'s (Sacramento, Cal.) Fab-Spray is a related product recently marketed.\* Pronto Dye-Foam is now sold in four colors—green, brown, rose, and blue—but Aerosol has additional shades on the way.

Originally Dye-Foam was a bulk product, sold for hotel and airline use. Diluted with water and run through

a carpet shampoo machine, it boosted the mileage of worn carpets, put off replacement time, important to hotels where carpet re-laying cuts sharply into room revenue.

Lab tested, and approved for hotel use, the carpet dye was shown to be virtually colorfast to light and to rub-off. (24 hours after application, some color can be rubbed off; after a week's aging, none comes off.) It's non-toxic, and leaves the rug almost odorless.

The housewife seemed a natural customer—if a way to eliminate the dilute-and-whip-foam drawbacks could be found. Aerosols were the answer; a 12-oz container (\$2.98), holding enough to treat a 9 by 6 foot rug was decided upon. Now just about out of the test market stage, Pronto Dye-Foam will be nationally distributed through department and hardware stores. It is recommended only for solid color, or sculptured rugs of wool. Behind the Aerosol Products Co.

\*Also classified with these rejuvenators might be Mercury Chemical Co.'s (Chicago) Peter Pan Suede Refinisher, a leather aid sold retail as 6-oz. aerosol at \$1.39.

*Originated by Coating-Resin Chemical Headquarters*

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RESIN MIXTURES

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MALEIC ANHYDRIDE RODS

Uniform in size, easy to weigh and handle, National Maleic Anhydride Rods improve working conditions; minimize labor costs; decrease contamination and moisture pick-up.

PACKAGING: 250# "lever-pak" fiber drum with built-in moisture-vapor barrier.

AVAILABLE: in ample quantity for prompt delivery.

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ALLIED CHEMICAL & DYE CORPORATION

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Providence 2-8115 15 Westminster St. (May) 1-3108 Calverton, L.I. Calverton Interchange Bldg. Calverton 3-1054

Philadelphia 2-8120 200-205 S. Front St. (June) 3-6387 Long Island, N.Y. Jefferson Station 8-8167 Glenwood 2-2350

San Francisco 5, Calif. 517 Howard St. (July) 1-2607 Gutierrez 2-Tops, James Building, (Hartford) 6-6312

Pittsburgh 9, Penn. 720 West Burleigh St. (Aug.) 1951 Avenue D, 18, 25-F, Park Ferry Rd. (Kosciusko) 3-3994

Chicago 54, Ill. The Standard Oil Bldg. (Sept.) 7-3117 New Haven 14, Conn. 7-Compton Bldg. New Haven 8-2278

Dayton 1, Ohio 203 West Fourth St. (Oct.) 2-2100 New Haven 14, Conn. 7-Compton Bldg. New Haven 8-2278



# **Why do buyers re-order these fatty alcohols?**

CACHALOT fatty alcohols have been specified by many of the largest firms in the chemical processing industries for well over twenty years. Why do chemists and purchasing agents re-order this brand? Evidently these cetyl, oleyl, and stearyl alcohols live up to the claims made for them: high uniformity from lot to lot, a wide range from which to choose the specific alcohol that meets one's needs, and availability in tonnage lots at fair prices. Some of the profitable uses for CACHALOT alcohols have been as emulsifiers, penetrants, anti-foams; and as intermediates in the preparation of esters, aldehydes, chlorinates, etc. For a booklet telling how you can use these versatile raw materials, write M. Michel and Company, Inc., 90 Broad Street, New York 4, N.Y. Basic suppliers to chemical manufacturers for over a quarter century, their trade name for the best fatty alcohols is

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Fluorine Specialists for Over 40 Years

## **SPECIALTIES . . . . .**

are Leon B. Fox (president) and Syd M. Perlman. They first tried push-button products with their Wince Co.'s (since renamed Diane Winston, Inc.) aerosol hair spray. Spritely sales of this product, Twirl, led to an expanded aerosol line, and then in January of this year, Aerosol Products Corp. was formed.

The first of Aerosol's products (with the "Pronto" trademark) were DDT-pyrethrins insecticides, moth proofers, and a waterproofer. A little later came Styrofoam to metal surfaces; Styrofoam has been found of value in fabricating strong, lightweight aircraft structures.

Next on the company's list will be a canned artificial snow. It's not a trail-breaker this time, but Aerosol likes the looks of things from the front seat, and aims to provide the products to get there.

**Pharmacy over Witchcraft:** Production of cortisone from diosgenin, an extract of the South African plant, Elephant's Foot, will begin next March at Clanwilliams, S.A.

**New Wax:** A new white ceresine type

wax, called Warcosine, is now being sold by Warwick Wax Co. (New York), subsidiary of Sun Chemical Corp. Not a wax blend, the petroleum-derived wax is suggested for use in paper products, cosmetics, and the like.

**High Flying Glue:** Exclusive license to make a Northrop Aircraft-developed adhesive has been granted to Narmco Resins and Coatings Co., (Costa Mesa, Calif.). The glue was devised to bond Styrofoam to metal surfaces; Styrofoam has been found of value in fabricating strong, lightweight aircraft structures.

**Detergent Extender:** A low-cost extender, claimed to be capable of replacing up to 50% of alkyl aryl sulfonates, has just been introduced by Oil and Chemical Products Co., Inc. (New York). The O&C extender is a by-product derived from its benzol refining process. A gallon is said to equal about 1.7 lbs. of sulfonate. Liquid and spray-dried forms are available; a technical bulletin will be supplied on request.

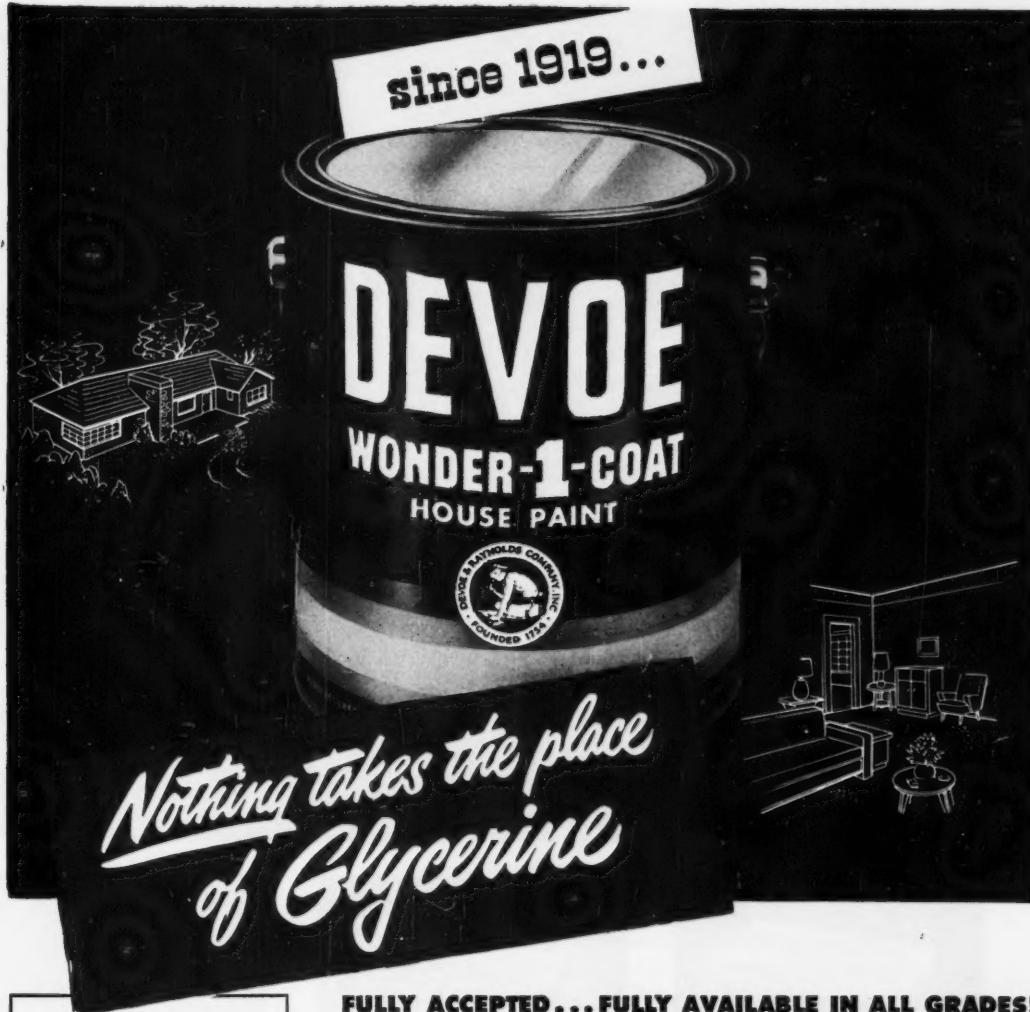


## **End of the Snail Trail**

CHEMICAL FUMIGATION is part of the preventive measures the U.S. Dept. of Agriculture is recommending to keep destructive mollusks from spreading in this country. Under a government regulation effective last week, voluntary inspection of incom-

ing ships for mollusks such as the African snail is mandatory.

Though choice of chemical treatment of ships is up to the inspector, hydrogen cyanide disks are the most widely used materials for sealed holds. Live steam can be used.



The Jones-Dabney Division of Devoe and Raynolds Company began using Glycerine to produce alkyd resins over 30 years ago. Today, the same Glycerine-derived alkyds which are used for every industrial coating application from bobbypins to battleships—can also be found in the famous Devoe line of enamels and interior finishes.

#### FULLY ACCEPTED... FULLY AVAILABLE IN ALL GRADES!

First, it was industrial finishes . . . now, in one of the most outstanding recent developments in the industry, Glycerine-derived alkyd resins have been introduced to the entire household interior coating field!

Pioneers in this new application of alkyd resins is America's oldest paint maker: Devoe and Raynolds Co. Inc. For years Devoe has recognized in Glycerine a vital chemical intermediate in the manufacture of its alkyd resins and ester gums. With these Glycerine-derived alkyds, Devoe marine and industrial coatings have earned a world-wide reputation for gloss, brightness and resilience.

Like Devoe, America's leading paint makers have found Glycerine easier to work with in the critical resin-making operation. For light-colored alkyds, Glycerine is available to meet the exacting standards of the color-conscious paint industry.

"Why Glycerine for Alkyd Resins and Ester Gums?" tells the story of these applications with detailed information on the chemical and physical properties of Glycerine. Write for your copy.

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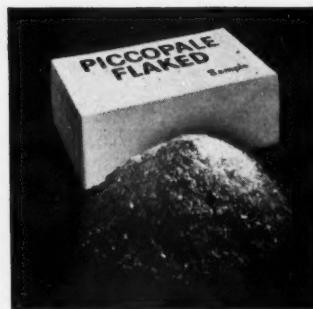


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Transparent, Thermoplastic



Available in Enormous Quantities

A 100%  
Polymerized  
Petroleum Resin



PICCOPALE is a completely new type of synthetic resin—not just another variety of one of the familiar types. It is entirely different from anything developed heretofore . . . is produced in very large quantities . . . and is priced low enough to make it feasible for use as a basic raw material.

PICCOPALE offers a new approach to improved quality and lower costs. This brand-new synthetic resin, developed and produced by Pennsylvania Industrial Chemical Corporation provides good chemical resistance, pale

initial color, excellent compatibility and ready solubility.

If you are interested in a bulk material that is absolutely waterproof, that is easy to use with other materials, that is low in cost, high in quality and readily available, investigate PICCOPALE!

We will be glad to send complete data and samples. Please specify application, and whether the sample of PICCOPALE should be in the form of flake, solid or a liquid solution.

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PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.  
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Please send sample of PICCOPALE for (application)

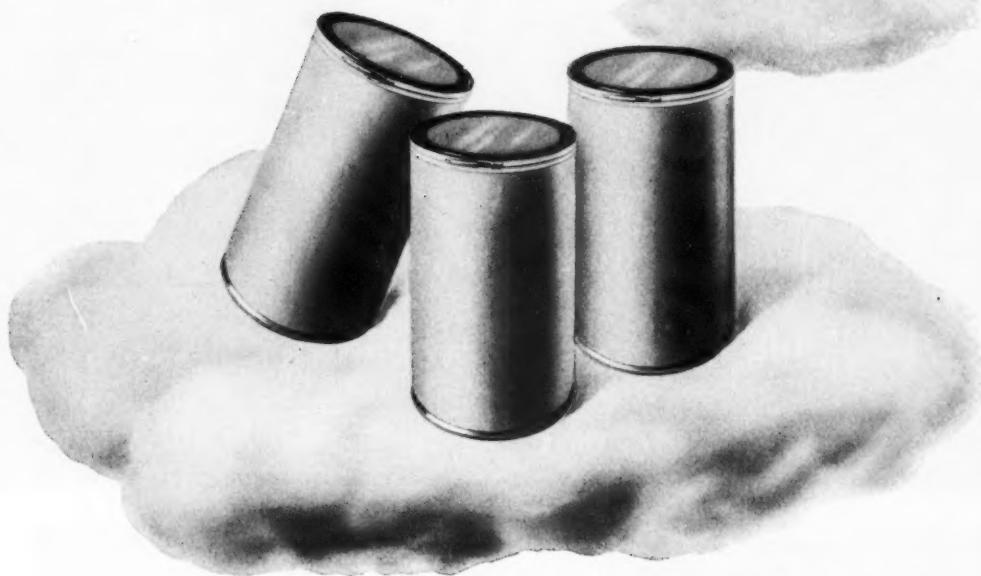
(check)  flake  solid  liquid solution

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These light-weight durable shipping containers are designed for real economy. They bring you appreciable savings on shipping charges — savings that can amount to substantial sums in the face of today's high freight rates. And they also save you worthwhile amounts on export shipments where import duties are figured on gross weight.

Continental drums are tough and sturdy. They stand up to the abuse of long freight hauls without splitting,

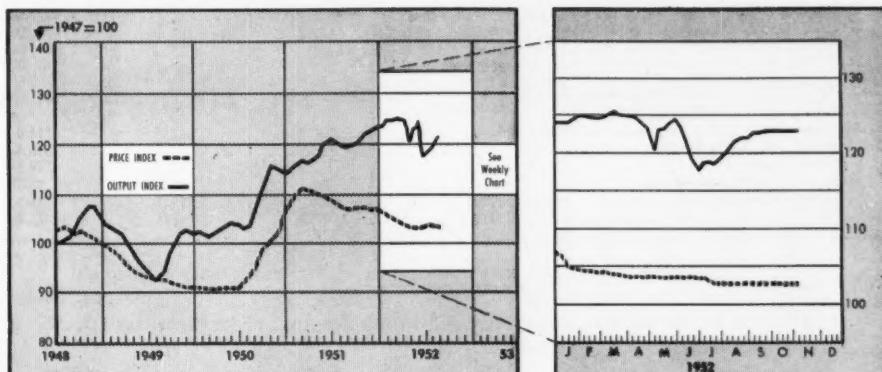
cracking or leaking. This means you can give expensive or dangerous materials adequate shipping protection at minimum shipping cost. Closures seal securely, yet go on and off easily.

These drums can be printed or paint sprayed to become colorful, effective "traveling salesmen!" Continental fibre drums are available in a full line of sizes, from 12 gallons to 75. Call or write your nearest office for complete details.

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# M A R K E T S . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries  
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

Naphthalene is gradually accumulating, reports from producers show. Price drops six weeks ago of 10%-plus have not stimulated buying by phthalic anhydride industry, apparently well loaded with the stuff. Looks as though previous naphthalene shortage scare caused them to stock up.

Some take-up of slack may be on the way from dyestuff intermediate makers, who are gearing for textile recovery.

Calcium chloride shipments from big Midwest producers continue to fall behind demand. Lag is now as much as 14 days. Most plausible reason for temporary shortage: last month's early cold snap startled county road caretakers into worrying about an early winter.

Nitrogen fertilizers will stay tight for a long time—and farmers know it. Well briefed on advantages of high nitrogen goods, more farmers are using more, stockpiling during dry weather, waiting for the rains to come.

Ammonia production, up 250% in the past five years, will have to run even faster to keep up with the farmers.

Methylene chloride manufacturers can't see logic of continued allocation, say they can fill all orders, tremendous government demand notwithstanding.

One reason for their chafing: plans for big push into non-flammable paint stripper field carry little weight with their customers, skeptical in atmosphere of shortage talk.

Plastics manufacturers, rubbing their eyes over uninterrupted demand for their output, are still keeping watch for signs of a break in demand from the toy makers. The usual seasonal dip could (but might not) materialize any day now.

Synthetic detergents are putting skids on soaps according to the nine months report of the Association of American Soap & Glycerine Producers. Combined sales of soap and synthetics, up 1½% over nine months of 1951 break down like this: synthetics—1,126 million pounds, up 20%; soaps—1,450 million pounds, down 9½%.

## MARKET LETTER

### WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100) .....	123.7	122.7	123.9
CHEMICAL WEEK Wholesale Price Index (1947=100) .....	102.3	102.6	106.9
Bituminous Coal Production (daily average, 1,000 tons) .....	1,800.	1,537.	1,517.
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.) .....	242.8	241.1	231.3

### MONTHLY INDICATORS—Wholesale Prices

(Index 1947-1949=100)	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods) .....	113.2	113.2	114.6
Chemicals and Allied Products .....	103.9	104.0	108.8
Industrial Chemicals .....	113.9	114.3	119.3
Drugs and Pharmaceuticals .....	92.1	92.1	95.6
Fertilizer Materials .....	111.0	111.0	107.5
Oils and Fats .....	50.9	48.9	71.8

Potassium muriate, producers agree, will remain active through the fertilizer season, but not grow short. A large influx of foreign material can be expected to fill any sustained high demand, make tightness out of the question.

Although toluol may be expected to continue on a tight producer-allocated basis, relief is predicted by mid-1953. Increasing amounts of petroleum toluol will help to satisfy the demand. No change in price is in the air, however.

Phenol pick-up, slow to start, is finally under way, thanks to orders from resins and adhesives makers.

But foreign competitors, with material cheaper than ours, will keep price down despite increased activity.

If past performance is any criterion, ethyl alcohol hasn't hit bottom yet. Look for another drop next Spring.

Reason: Cuban producers, facing another molasses splurge piled on top of present inventory, will probably be glad to take even 4¢ per pound to keep it moving.

It looks as though peanut oil will continue tight. This week's 10% advance in price will not bring out more of the government-controlled commodity.

Crushers are inclined to blame processing controls for this situation. But basic root of trouble is this year's comparatively light peanut crop, down about 25% from last year and way down from the previous ten-year average.

Japan's import ties are strengthening, but not necessarily with our country. Latest move of The Policy Board of the Bank of Japan is to allocate a "special foreign currency budget" designed to facilitate trade with certain countries.

The Policy Board action is expected to bring in needed potassium nitrate from West Germany and French Union, might be extended to woolen yarn imports from Argentina.

Distillers feel that peppermint oil prices will remain at current levels for several months. Although the Midwest harvested a smaller crop from its higher-quality fields this year, a plentiful supply of low-menthol oil from the Far West will bolster stocks, maintain prices.

### SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending November 17, 1952

UP—	Change	New Price	Change	New Price
Lead, metal, lb., c.l. ....	.005	.145	Glycerine, saponification, crude, 88%	.02 .285

DOWN—	Change	New Price	Change	New Price
Acid, Tartaric, domestic, c.l. ....	.025	.37	Alcohol, amyl, expentane, T.C. ....	.05 .15

All prices per pound unless quantity is stated.

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## n-PROPYL ACETATE

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### Gain superior resin compatibility and improved lacquer odor

Celanese n-Propyl Acetate is the newest of the Celanese Solvents that enable you to cut production costs while maintaining highest performance standards.

**Medium boiling, low viscosity ester.** N-Propyl Acetate is a medium boiling, low viscosity solvent with a pleasant odor and excellent blush resistance. As a low-cost replacement for other ester combinations of similar quality, it is saving lacquer manufacturers up to 6¢ a gallon on their finished product. Produced under controls that assure uniformity and high purity, Celanese n-Propyl Acetate gives you maximum quality at minimum cost.

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**Celanese Product Evaluation Laboratory.** Use the facilities of the Celanese Product Evaluation Laboratory to check n-Propyl Acetate in your own formulation against any series of tests you designate. Write for samples and Technical Bulletin N-29, to Celanese Corporation of America, Chemical Division, Dept. 652-K, 180 Madison Avenue, New York 16, N. Y.

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Color.....	15 APHA
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Boil. Pt.....	95°C - 103°C
Ester Content.....	90% - 92%

#### OTHER SOLVENTS BY CELANESE

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● This generation has been blessed by an amazing succession of discoveries in the medical and pharmaceutical fields that have practically conquered many diseases previously considered "killers." One of the earliest and most important discoveries was the sulfa family.

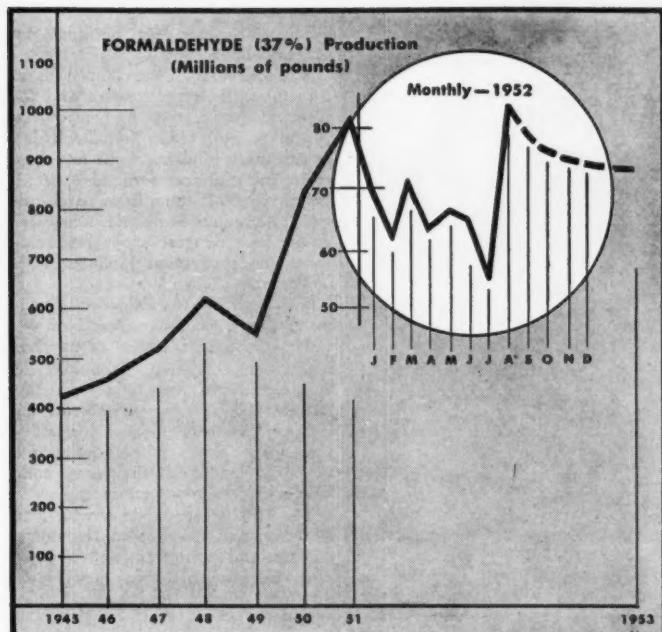
U·S·S Pyridine that goes into the manufacture of the sulfa drugs is typical of the almost countless applications of U·S·S Coal Chemicals. The complete line of U·S·S Coal Chemicals also includes Benzol, Toluol, Xylool, Phenol, Cresol, Cresylic Acid, Naphthalene, Picoline, Creosote Oil and Ammonium Sulphate.

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**U·S·S COAL CHEMICALS**



**UNITED STATES STEEL**



## How Much Formaldehyde?

After a couple years of forced growing, formaldehyde plants are ready for and hopeful of a gradually rising demand.

DPA goal, 300 million pounds above industry sights, is encountering resistance from more cautious producers.

Captive production, upgraded products and a free material supply mark new order.

Today the formaldehyde supply picture is vastly different from the hectic times of late 1950 and early 1951. The problems set up by the Korean emergency scare have disappeared. But to comprehend how formaldehyde arrived at its present state of free supply is to know by what paths it came.

**No Choice:** As far as formaldehyde supply is concerned, chances are we'll never again need to choose between guns and butter; i.e., between military plastics, synthetic rubber and explosives on one hand and plastic toys on the other.

For formaldehyde capacity responded mightily to the national emergency. Rising literally to the occasion, production for the last half of 1950 shot to a 900-million-pound annual clip, up over 60% from the leisurely 550-million pace of 1949.

**The Pinch:** In an industry so basic as formaldehyde, emergency troubles

compound rapidly—and can dissipate almost as fast. This sudden squeeze from peacetime freedom to wartime tightness resulted in great part from demands for synthetic rubber, military plastics and explosives. Although not all draw directly upon formaldehyde, these requirements meant pressure for the material.

- Synthetic rubber: In its earlier development synthetic rubber took large amounts of ethyl alcohol (CW, Nov. 15). (With petroleum-base butadiene facilities now available, this state of affairs no longer obtains.) Two years ago more ethanol for rubber meant less for anti-freeze, meant more demand for methanol anti-freeze. And less methanol, base for most formaldehyde, resulted in a squeeze on that material.

- Military plastics: War demands put special strain on plastics. First, substitutes for hard-to-get metals had to be employed. Second, many war-

**DIPHENYLTHIOCARBAZONE  
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Reagent for Co, Cu, Pb and Hg.

**PHENOLSULFONPHTHALEIN  
(PHENOL RED)**  
For estimation of Renal Function, Also as indicator

**THYMPHOPHTALEIN**  
As pH indicator and test for blood

**BENZIDINE DIHYDROCHLORIDE**  
Reagent for test for blood

**PROPYL GALLATE**  
An anti-oxidant for edible animal fats

Our research department has solved the synthesis of such complicated organic chemicals as PHENYLEPHRINE HYDROCHLORIDE U.S.P., TETRA-CAINE U.S.P. & METHONIUM HYDROBROMIDE pharmaceutical grade. We will be glad to supply these materials, as well as to develop synthesis and manufacture your specific products.

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DATA SHEETS.  
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**AEROSOLS**

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A CATALYST  
TO MAKE THINGS  
HAPPEN . . .**

Money is a catalyst that makes things happen in industrial growth. In chemicals, money is the catalyst that bridges the passage from laboratory to commercialization of new and better products in the astonishing successes of modern chemistry—from medicinals, to agricultural chemicals, to new textile fibres.

Sound financing makes such progress possible by helping to speed the reaction between discovery and production, between science and industry. Much of the capital that has nourished the chemical industries has been supplied by commercial banks. As expansion proceeds today at such an impressive pace, the financing of our forward-looking chemical manufacturers becomes a more important phase of commercial banking.

Guaranty Trust Company of New York has valuable experience in chemical financing. Our officers are readily available to discuss your financial needs.

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**M A R K E T S . . . . .**

special jobs can best be done by tailor-made plastics.

- Explosives: Their impact upon formaldehyde is both direct and indirect. Directly, they not only force pentaerythritol (from formaldehyde) to substitute in alkyd resins for glycerine, but consume formaldehyde as pentaerythritol tetranitrate and nitrohexamine. Indirectly, ammonia, at the base of most explosives, competes for production facilities with methanol.

That's why formaldehyde was pinched two years ago. And how we came to expand facilities as we did.

The only reason formaldehyde wasn't squeezed even tighter was the lack of other plastics ingredients. In less explosive times most formaldehyde goes directly into phenolic and urea resins. But at that time both phenol and urea were also tight.

**The Let-Down:** In time, with lots more ethanol, increased ammonia facilities and greater amounts of benzene (for phenol) from petroleum, the formaldehyde (and resin) picture changed.

But just as the way cleared for an uninterrupted drive for plastics and other formaldehyde products, along came the general economic slump. From all-time (1951) highs, phenolic, urea and related resins, tied by numerous products to the economic body, dropped with the times. Result: Formaldehyde, after a long tight period, suddenly flowed freely.

The let-down has been considerable. Output of resins, formerly users of one-third to one-half all formaldehyde, is running an average 25% lower than a year ago. For the first eight months of 1952, phenolic and related resins total a slow 225 million pounds versus 314 million for the same period last year. Similarly, urea and melamine resins show a mere 128 million pounds so far as against 164 million last year.

Although acknowledging the definite dip, formaldehyde producers are fairly optimistic about next year's outlook. They point with hope to the increased plastics activity of the past two months.

And this time, even urea, the last of the tight resin components (*CW Market Letter*, Nov. 15) will gradually ease. In longer range, the three or four additional plants now under way should be adequate.

**The New Look:** With formaldehyde pipelines apparently all filled, industry leaders, reluctant to expand promiscuously, are exploring one or more of three policies. They are either reconsidering new expansion, turning to

# One DEMPSTER-DUMPSTER Serves Scores of Containers . . . All Designs . . . All Sizes . .



## Handling Materials of Almost Every Description at the Lowest Possible Cost!

One Dempster-Dumpster mounted on one of your trucks serves any required number of big detachable Dempster-Dumpster Containers spotted at convenient materials accumulation points inside and outside your buildings. The capacity of these containers range up to four times greater than the average dump truck body. They are built in a wide variety of designs best suited to the materials handled—be they solid, liquid or dust . . . trash or rubbish . . . bulky light or heavy. The truck-mounted Dempster-Dumpster, with only one man, the driver, picks up one pre-loaded container after another, hauls it to destination where materials are dumped or load set down intact. The Dempster-Dumpster may handle raw materials on one haul, liquids on another, trash and rubbish on another, etc. It's like having one truck with 15, 25, 65 or 100 different bodies.

This is the *Dempster-Dumpster System*—the modern method of bulk materials handling. It is saving thousands of dollars annually for hundreds of plants in every type of industry because it: Eliminates 3 to 5 conventional trucks and crews—reducing cost of truck equipment and operation accordingly. . . Eliminates standing idle time of trucks and crews. . . Eliminates re-handling of materials. . . Increases efficiency, sanitation and good housekeeping.

The *Dempster-Dumpster System* is, without question, the most efficient method of materials handling by truck ever devised! More efficient and lower cost materials handling in your plant may be simply a matter of getting the minds of your engineers and ours together. Write us now. The *Dempster-Dumpster System* is manufactured exclusively by Dempster Brothers, Inc.



WHEN A CONTAINER is full, the Dempster-Dumpster picks it up, hauls it to destination and dumps the materials or sets the load down intact. These three simple operations, shown above, are hydraulically controlled by driver in truck cab.

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# SOLVENTS from O&C

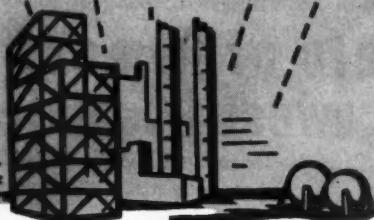
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In considering a dependable source of supply for solvents, it's important to know where they come from.

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## MARKETS . . . . .

captive production setups, or promoting specialty products.

- Although the DPA has granted certificates of necessity for several formaldehyde expansions, it is known that the grantees are not rushing headlong into construction and at least one of the certificates has already been returned. It looks as if DPA's goal of 1,600 million annual pounds is about 300 million pounds higher than the industry cares to "buy."

- Because formalin is too cheap a material to bear much freight charges, more expansion is going to on-the-spot captive type. For example, Heyden, in Canada, plans formaldehyde increases tied in with pentaerythritol production.

- Again, to beat freight costs and upgrade products, other producers are pushing higher-unit-value, more readily transportable solid formaldehyde forms, such as paraformaldehyde.

CW polled industry spokesmen to gauge next year's consumption under these new conditions. The composite response to the survey pieces together like this:

End Use	Millions of pounds
Phenol-formaldehyde resins	200
Urea-formaldehyde resins	180
Melamine-formaldehyde resins	60
Pentaerythritol	200
Ethylene glycol	100
Hexamine	70
Paraformaldehyde	40
Textiles	25
Miscellaneous	25
Total	900

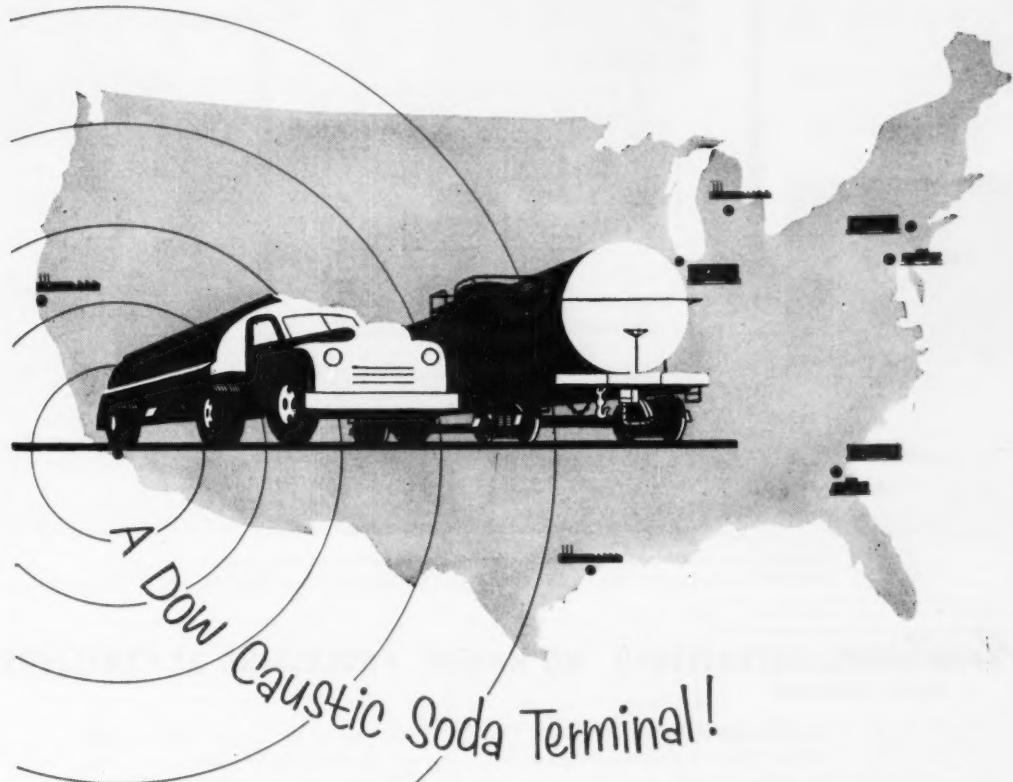
This total represents about a 10% rise over the estimate for 1952. In turn, 1952, for the reasons mentioned, looks about 20-25% below banner year 1951.

Virtually all of this dip below "boom times" is reflected in the estimates for urea-formaldehyde and phenol-formaldehyde resins. Of the other uses, only paraformaldehyde is expected to maintain a rapid rate of climb.

The survey indicates that the industry's guess at a moderate improvement for next year is based, in the main, on a confident outlook for the general economic level—rather than on special conditions in the formaldehyde industry.

The producers are hoping for a chance to use all those muscles they've been building up.

# how close are you to Los Angeles, California?



## The Chemical Industry Needs Hundreds of Thousands of Tons of Caustic Soda Each Year!

In the chemical industry, prompt caustic soda delivery is of the greatest importance in keeping production steady. For this reason Dow maintains an outstanding network of distribution facilities. In addition to Dow's caustic soda solution terminal in Los Angeles, California—Dow operates caustic soda producing plants in Midland, Michigan; Freeport, Texas and Pittsburgh, California. Dow caustic soda solution is

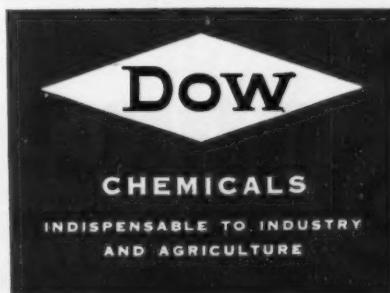
also shipped from bulk tank terminals in Carteret, New Jersey and Charleston, South Carolina. Caustic soda solid, flake and ground flake are shipped from terminals in Port Newark, New Jersey; Chicago, Illinois and Charleston, South Carolina. All of these strategically located distribution points play an important part in providing the chemical industry with the superior service it requires.

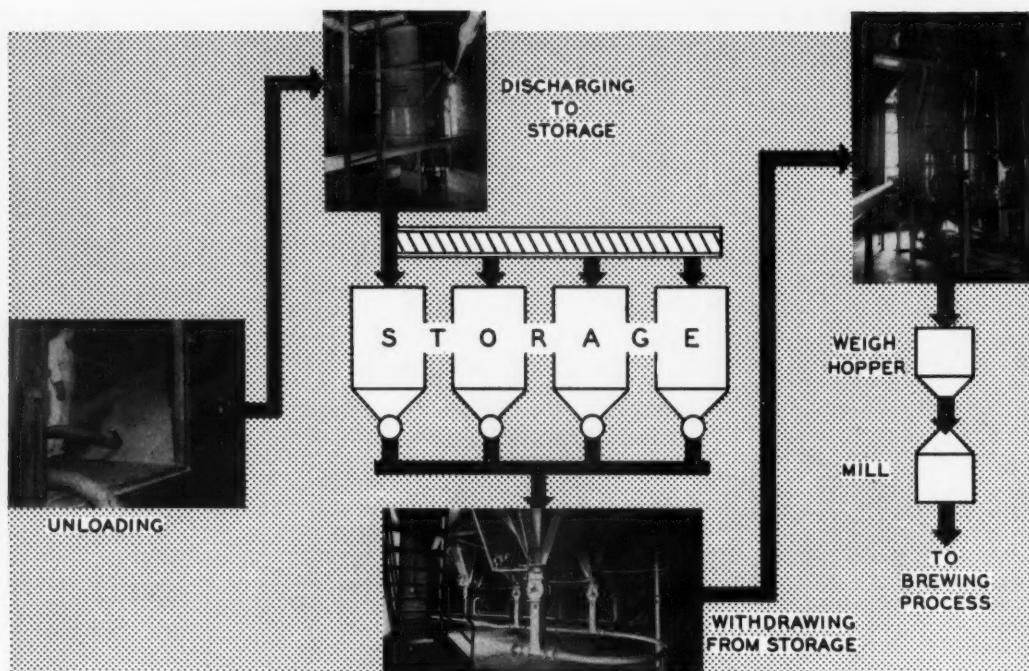
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Materials flow diagram shows reason for "No Hands" operation at Centlivre. From transport to process, grains are handled automatically by Dracco Airstream Conveyor.

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From incoming transport to cooker, the grains in this modern brewery are moved by Airstream in a swift, sanitary operation. They are (1) unloaded to bin storage, (2) conveyed from storage to automatic weighing in scale hoppers, and (3) transported to the brewing process. These are accomplished accurately and efficiently with a great

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If you have a handling problem involving dry granular or powdered materials, Dracco techniques and Dracco equipment can provide a cost-saving solution. Why not call in a Dracco engineer today? There is no obligation.

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# PRODUCTION . . .



ALFALFA TO TOOTH PASTE: Many means to the same end.



## Gathering Up The Green

As demand increases, competition sharpens, chlorophyll technology moves "out of the kitchen," into the plant.

Two companies now take the lion's share of the market, but they are due for some stiff competition as all . . .

Six companies bid for a bigger share by improving their processes. Here's what they're doing:

Like most things, chlorophyll means different things to different people. To the adman, for instance, it's Nature's Magic Ingredient, the sure-shot cure for foul odors. To the puzzled man on the street, it's the stuff that makes grass (also toothpaste, soap and numerous other items) green. And though chances are he discounts the extravagant claims made for some of the "chlorophyll containing" products, he buys them just the same.

To a fistful of chemical companies, chlorophyll is a chemical with a multi-million dollar market. And to the man in the plant, it presents a challenge to his know-how in unit processes. A few years ago, when chlorophyll was a small-volume chemical (used in wick-type deodorants and as a colorant in soap) making chlorophyll, like baking a cake, was more of an art than a science. Now, since it has blossomed into a household word, there's a real incentive to work out smoother processing techniques.

The proof, if there's need of any, of the chlorophyll boom is clearly evidenced by the import figures over the past few years. The U.S. Tariff Commission reports that in 1950, total imports were less than 3,000 lbs. In 1951 that shot up to 12,000 lbs.

(valued at \$25,000) and in the first eight months of this year to over 19,000 lbs. (valued at close to \$390,000). The same trend is pointed up by sales at the retail level, although there it's difficult to get an unbiased estimate. But the Rystan Co. (New York) sold about \$6,000 of chlorophyll products in 1945. One estimate places sales for the entire industry in 1951 at the retail level at \$22 million, puts the 1952 figure at \$59 million.

**New Names:** The skyrocketing demand at the consumer level brought some famous chemical names into the picture as producers of the basic chlorophyllin salts. The roster of manufacturers now includes Strong Cobb & Co. (Cleveland) which bought the pioneer producer, American Chlorophyll (Lake Worth, Fla.); Archer-Daniels-Midland (Minneapolis), which bought out both Keystone Chemurgic (Bethlehem, Pa.) and Chlorophyll, Inc. (Neodesha, Kans.); and the Glidden Co. (Cleveland) which decided to try its hand at chlorophyllin production in September, just last month made a trial run at its Buena Park (Calif.) flaxseed-soybean extraction plant.

The same hike in demand moved Chlorophyll Chemical Corp. to buy the McAllen (Tex.) plant of Valley Vita-

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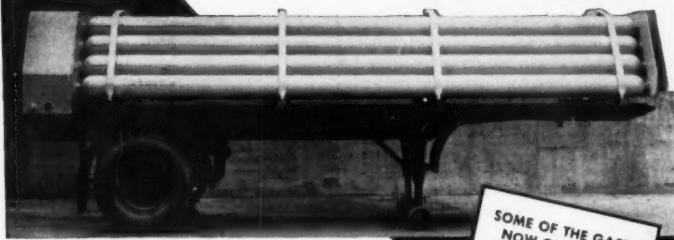
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## PRODUCTION . . . . .

mins, formerly a Godfrey Cabot subsidiary. And it caused some of the present producers to embark on ambitious expansion programs. For instance, last month National Chlorophyll & Chemical Co. (Lamar, Colo.) broke ground on a new \$1 million chlorophyll plant. Presently the firm is making 600-1,000 lbs. a month in an oversized pilot plant. It expects the new plant will turn out 100,000 lbs. a year. Alfalfa for the project will come from National Alfalfa & Milling Co., owner of 46½% of National Chlorophyll's stock.

Moreover, Minnichlor, Inc. (Enfield, Minn.), now marketing 10 lbs. of chlorophyllins a day, has equipment on order which, it says, will boost capacity to 70-80 lbs. a day before the year is out.

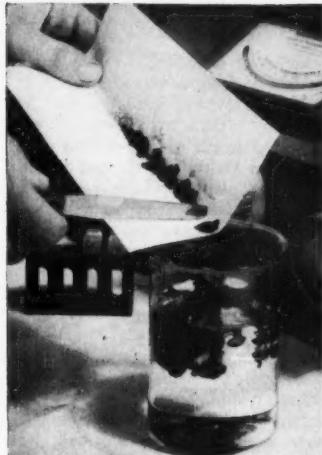
It's hard to see just where all the increase in capacity will go. Though you can't pin the present market down with any degree of accuracy, the best guess is that it's in the neighborhood of 10-11,000 lbs. a month. Of that, the American Chlorophyll Division (of Strong Cobb) probably accounts for 4,500 lbs.; ADM, 3,000 lbs.; imports, 2,000 lbs.; the rest from smaller producers.

**Process Scurry:** In any case, it's clear that although production has lagged behind demand for the past two years, capacity in place and on-the-way increases will be more than enough to meet any future demands. Hence, all the producers are working on more efficient processes either to snag or hold onto a share of the market.



CHLOROPHYLL PROCESSING: To the slickest belong the spoils.

PRODUCTION . . . . .



**CHLOROPHYLL TESTING:** An inherent anomaly in the method.

American Chlorophyll, the first producer, offers a good case in point. When it was the only producer in the field, its process looked like this: Alfalfa, shipped in from Kansas, was extracted with hexane. Then the chlorophyll-containing extract was saponified with caustic potash (or caustic soda) to form the water-soluble potassium (or sodium) salt of chlorophyllin. The water solution was then treated with copper sulfate under controlled pH to increase the light stability of the product by substituting copper for the magnesium present in the original chlorophyll molecule. After centrifuging and drying in a spray dryer, a dark blue-green powder was obtained that varied in chlorophyll content between 50-120%. Yield was 6 lbs. per ton of alfalfa.

The hexane extracts (the unsaponifiables) after evaporation and treatment with ethanol and acetone yielded waxes and carotene, Vitamin A and—on distillation of the residues—phytol (precursor of Vitamin E). Sales of these by-products represented roughly 10% of the plant's income.

The alfalfa that remained after the chlorophyll was extracted was removed manually from the cast-iron cookers and hauled to farmers for fertilizer or cattle feed.

Then, last September, after being taken over by Strong Cobb, it called in the Blaw Knox Chemical Plants Division to engineer and equip a continuous extraction unit. It also engaged Blaw Knox to work up design and cost

\* This anomalous concentration of over 100% is due to an arbitrary standard of purity based on spectrophotometric absorption at 410 millimicrons of a 0.15% solution of a chlorophyll prepared in the laboratory. Apparently, the commercial chlorophyllins contain impurities that absorb at the same wave length.

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## PRODUCTION . . . . .

estimates for a new chlorophyllin plant.

Archer-Daniels-Midland has also put in a continuous extraction unit. It adapted a soybean extraction unit at Mankato (Minn.) to chlorophyll extraction. Miscella (the oil-solvent mixture) from Mankato is shipped to the processing plants at Bethlehem and Neodesha where it is saponified, then treated with copper sulfate, ferrous oxide or ferrous sulfate to produce the metallic salt desired by the customer. ADM's process is probably similar to Strong Cobb's except for a variation in solvent.

Glidden's present plans call for making only the crude extract, leaving further refining and marketing to others. However, the extraction of crude alfalfa fits in nicely with its operations since, with only slight modifications, the Buena Park plant can be changed over from processing soybeans or flaxseed to alfalfa. It can treat 50 tons a day, from which it can get 400 lbs. of chlorophyll. The process to be employed was developed by Research Director Percy Julian, is still confidential.

The Valley Vitamins plant taken over by Chlorophyll Chemical Corp. was originally built to produce carotene, operated for about a year before it closed down in 1949. Well written up in the literature, the process employed a Tsweet chromatographic column. Chairman of the Board Sinclair Robinson now tells CW that in converting from carotene to chlorophyll, efficiency of the process has been raised from 41% to 93%. Says he: "We've retained the absorption column principle but use selective absorbents rather than the absorption columns." He adds that the plant is fed by alfalfa grown in the Rio Grande Valley, but is supplemented by other crops such as collards, broccoli and carrot tops—substances that run high in chlorophyll. On a three-shift basis, says Robinson, Chlorophyll Chemical can turn out 500 lbs. a month.

National Chlorophyll reports that it too has a continuous extraction. It extracts alfalfa with a mixture of hexane and acetone. The extract is concentrated, saponified, then treated with copper sulfate. The firm claims to be getting 5-8 lbs. of chlorophyll per ton of dry alfalfa.

Minnichlor's chief claim to processing fame is a low-temperature extraction. Minnesota alfalfa is dehydrated in nearby mills, then pulverized in a hammermill. The chlorophyll is then extracted with hexane at 70-80 F. Minichlor says others do it at 140 F.,

## PRODUCTION . . . .

thus there is less heat decomposition in its process. After extraction, the solution is concentrated, then purified. The purification step, Minnichlor regards as a trade secret. It reports a yield of 4.9 lbs. of chlorophyllins per ton of alfalfa.

## EQUIPMENT . . . .

**Floating Cover:** Recco Sales Co. (New York City) claims some new features for its line of chemical mixing and storing tanks. Biggest feature, says Recco, is an inert plastic cover that fits firmly against the sides of the tank, floats on top of the contents. The plastic cover is transparent, thus permits a constant, visual check on the contents. Recco also claims that it reduces danger of contamination, oxidation and evaporation of the contents.

**All In One:** The Sintering Machinery Corp., Transportometer Division, (Netcong, N.J.) is now introducing its



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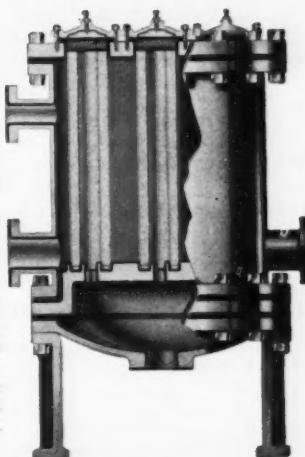
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**Centrifugal 36"x40", Bird, Continuous, Consoli-**dated Products, 18 Park Row, N.Y. 38, N.Y.

**Centrifugal: Tolhurst suspended 26", stainless** steel, Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

**Centrifugals, Bird 48": Rub. Covered, First Ma-**chinery, 157 Hudson St., N.Y. 13, N.Y.

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**Mills, Tuyer tube, 5'x22", 5'x20", 4'x18'6",** 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

**Mixers, 700 gal. Turbo, Simplex, Jktd. (2)**, Consolidated Products, 18 Park Row, N.Y. 38.

**Mixer-Banbury #3 with 100 HP motor, Equipment** Clearing House, 285-10 St., Bklyn 15.

**Mixer, horiz. ribbon, 14'x7'6"x6", jktd. 450 cu. ft.**, Consolidated Prod., 18 Park Row, N.Y. 38.

**Mixer: Readco double sigma arms, 250 gal.** stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

**Pebble Mill: Hardinge 5'x36" burlstone lined**, Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

**Pebble Mills: 8'x8', Porcelain lined, First Machinery Corp.**, 157 Hudson St., N.Y. 13, N.Y.

**Pebble Mills 10 gal. to 800 gal., porcelain lined**, 20. Consolidated Products, 18 Park Row, NY 38.

**Pumps, S/S Centr. Labour, self-prim. 5 and 10** HP, (6). Consolidated Products, 18 Park Row, N.Y. 38.

**Reactors, Pfaudler Jktd. 400 Ga. First Machinery Corp.**, 13, N.Y. 38.

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feed regulating Transportometer. The machine is designed to move any finely divided material used in the process industry at a constant, pre-set rate. It gives a direct reading of the total mass moved as well as the rate in tons/hr., lbs./min. or other units. It's claimed to weigh, regulate and indicate totals with an accuracy of 99% or better.

**Made of Dynel:** The Felters Co. (Boston) reports it is now producing Dynel-Mat, multilayer webs of dynel, in thicknesses from 1/100 to 1/4 in. The firm figures that dynel's resistance to chemicals, fungus and insects, its weight and dimensional stability, makes Dynel-Mat a natural for applications involving filtering, lining or cushioning under severe conditions.

**Easy Greasing:** The problem at American Cyanamid's fluid cracking catalyst plant at Fort Worth (Tex.) was frequent operational failures of a screw pump caused by inadequate arrangements for lubrication. The solution, as suggested by one of the company's repairmen (for which he received a \$600 award from the suggestion system) was to drill a hole in the pump's drive shaft, then insert a grease fitting to parts that weren't being properly lubricated. The result, says Cyanamid, is a reduction of wear and tear on pump parts, fewer repair bills, and stepped-up operation of the pump.

**Move to Canada:** Taking cognizance of Canada as a growing center of process industry, Chiksan Co. (Brea, Calif.) has purchased 9 acres of land in Brantford, Ont., will build a plant to make the firm's line of ball-bearing swivel joints, used to provide flexible lines for the flow of fluids and gases under extreme pressures and temperatures. The firm also expects to make unions, blocks and other products of its Well Equipment Corp. Division.

## Fork Truck Rodeo

Pitting their driving skill against one another, Monsanto Rubber Service Division's fork truck operators competed in a "rodeo" at their recent plant picnic (Nitro, W. Va.).

Increasingly popular at plant gatherings, the "rodeo" consists of running an obstacle course. Each man is timed as he drives through narrow, winding aisles, picks up a drum, places it on a pallet, sets the pallet down within 6 inches of the finish line. Contestants are judged not only on speed and control, but also on compliance with posted safety rules and directions.

# BOOKLETS . . .

## Chemicals

### Tall Oil

4-p. brochure discusses application of Tall Oil to flotation processes. Some aspects touched upon are: collectors, modifiers, frothers, phosphate rock flotation, and flotation principles. Featured is a topics sheet giving news items on tall oil marketing, applications and developments. Request Bulletin No. 11, The Tall Oil Assn., 122 East 42nd St., New York 17, N.Y.

### Heliogen Colors

16-p. booklet describes properties and uses of Heliogen colors, giving information on the powder brands, paste and presscake brands, water-dispersible powder brands and water-dispersible paste brands. The Heliogens are for use in enamels, flushing in oils, lacquers, paper, plastics, printing inks, and textile printing. General Dyestuff Corp., 435 Hudson St., New York 14, N.Y.

### Research Charts

16 data sheets on general biological, organic and enzymatic products including properties, uses, packaging and applications of such preparations as: dextrose, iodooaliphonic acid, protamine sulphate, etc.

phosphatase reagents and enzymes for starch liquefaction. Paul Lewis Laboratories, 4253 North Port Washington Ave., Milwaukee 12, Wis.

### Molding Powders

12-p. booklet on Plexiglas acrylic molding powder shows applications and designs for products and uses in such fields as lighting, signs, appliances, and glazing and industrial parts. Data on physical, optical, electrical and chemical properties are included. Plastics Department, Rohm and Haas Co., Washington Square, Philadelphia 5, Penna.

## Equipment

### Recorders and Indicators

46-p. catalog contains information concerning Electronik non-control precision instruments, which employ a potentiometer, Wheatstone bridge, or other measuring circuit to measure temperature, pressure, flow, pH and other variables. Information on specially adapted instruments such as function plotter, recorder, and double range precision indicator is included. Request Catalog 1520, Minneapolis-Honeywell Regulator Co., Brown Instruments Division, Wayne and Windrim Aves., Philadelphia 44, Penna.

## Oil Field Equipment

20-p. bulletin on equipment for the generation, transmission, distribution, and utilization of electric power in oil-field and pipe-line applications discusses operational problems of deep-well drilling and oil-well and pipe-line pumping. Request Bulletin GEC-926, General Electric Corp., Schenectady 5, N.Y.

## Radiation Detection

16-p. brochure describes all types of radiation detection and health instruments. Included are electronic instruments; Geiger, proportional and scintillation counters; health instruments; shields and safety devices. Dept. FP-11, Radiation Counter Laboratories, Inc., 5122 West Grove St., Skokie, Ill.

## Magnet Alloys

16-p. booklet reviews commercially available permanent magnet alloys, especially the Alnico family. Advantages, limitations, characteristics of ductile permanent magnets (cunife and cunico) and of special permanent magnets (silver or platinum alloys) are described. Representative magnetic properties and composition of 23 alloys are given in a table. International Nickel, Dept. EZ, 67 Wall St., New York 5, N.Y.

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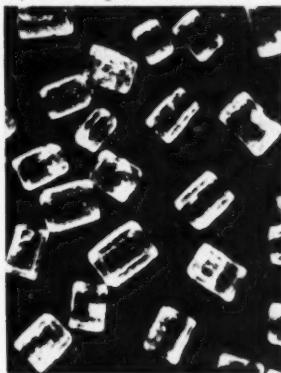
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